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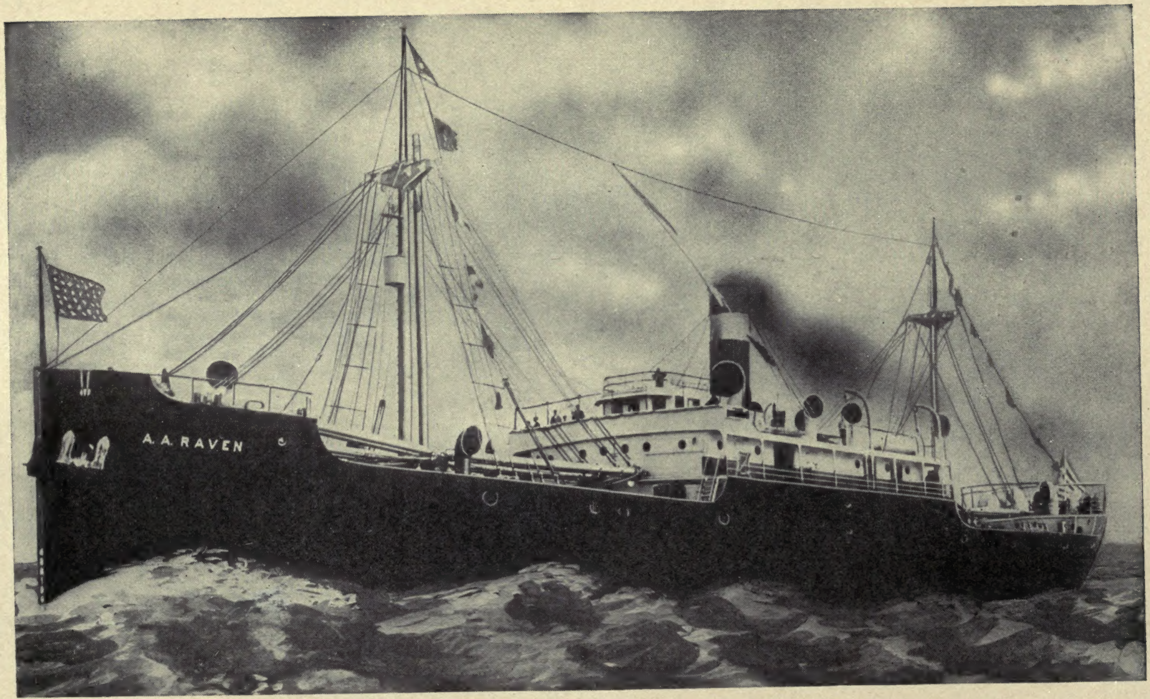
THE
NEW MERCHANT MARINE



S. S. "RAVEN"

Lake type of vessel built for the Emergency Fleet Corporation by the Great Lakes Engineering Works, Detroit, Mich. She is an ocean freighter of 4,300 deadweight tons. Vessels of this type were built by the Great Lakes Engineering Works at the rate of one every nine days for two years continuously.

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The Century Foreign Trade Series

THE NEW MERCHANT MARINE

BY

EDWARD N. HURLEY

Formerly Chairman of the United States Shipping Board
Formerly Chairman of the Federal Trade Commission
Author of "The Awakening of Business," "Banking and Credits in Argentine, Brazil, Chile, and Peru," etc., etc.

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TO THE
AMERICAN BOY
WHOSE DUTY IT IS
TO MAINTAIN OUR FLAG
UPON THE SEAS
NOW THAT IT HAS BEEN RESTORED THERE
THIS VOLUME
IS HOPEFULLY DEDICATED

PREFACE

In his admirable volume on the Dardanelles campaign, Major-General Sir C. E. Callwell, K. C. B., tells of the many urgent appeals that were made in May and June, 1915, to the War Office in London for reinforcements. In response, the Commander of the Expeditionary Force, Sir Ian Hamilton, was informed that his army was to be "augmented by three complete divisions and by infantry of two more Territorial divisions, all of them coming from the United Kingdom."

"They were timed to arrive," says the author, "between the 10th of July and the 10th of August — a striking illustration of the number of days needed to embark and to move a force of all arms, mustering considerably less than 100,000 men, oversea on a fortnight's voyage."

When it is realized that the British, with all of their ships and facilities for the movement of troops and supplies at sea, found it necessary to take a full month to transport "considerably less than 100,000 men," together with their equipment, at a time when the German submarine campaign had scarcely begun and England had lost but a small amount of her tonnage, it is not difficult to understand the skepticism with which Germany viewed the ability of the United States, with practically no overseas tonnage available, to transport a sufficient army, food, and munitions to the battlefields of France and Flanders in time to be a serious menace to her military operations and ambitions.

It is small wonder, in the light of England's experience in moving troops to the Dardanelles, that General Ludendorff in his recently published book, entitled "Ludendorff's Own Story," should have expressed astonishment at the ease with which the American troops and supplies were transported across the Atlantic, in spite of all prophecies to the contrary, and amazement at the failure of the U-boat war to prevent this almost miraculously rapid transportation.

General Ludendorff states that it did not seem possible to him that the submarine could fail to prevent, by a reduction of the Allied tonnage, the quick transportation of American troops. He and the German navy were absolutely sure that the aggression of our soldiers could be effectually thwarted. He declares that nobody in Europe believed that the new American army could at once be so available as to prevent peace dictated by Germany. He was astonished at the rapidity with which the American troop-ships and cargo-boats answered the call of the Allies, and he did his best to assist in the sinking of the American transports and cargo-carriers. "Public opinion in Austria-Hungary demanded it," he says. He found hope in the belief that the enemies' remaining tonnage for food supplies was so reduced that starvation would soon force the Americans to remain at home.

But still they came!

Instead of transporting "considerably less than 100,000 men" in thirty days, before the close of the war we were moving more than 250,000 men a month and more than 1,000,000 tons of freight across the submarine-infested Atlantic; and, what was equally as important, we were building sufficient ships to keep our forces supplied with full equipment, food and munitions.

The feeling, not always openly expressed but nevertheless entertained, on the part of many of our own people as well as of our associates in the war, that we could not build ships fast enough to be of real service in helping to win the war, was set at rest by our accomplishments.

The results obtained could not have been made possible by any man or organization without the spirit of the people being back of the effort.

President Wilson's daily interest in our every move and his encouraging counsel and advice made the task and the effort worth while. Nor was inspiration and incentive from the other side of the Atlantic lacking. Mr. Lloyd-George, Prime Minister of England, made several speeches in Parliament in which he stated that if the war was to be won by the forces opposed to Germany, there must be "ships, ships, and more ships." His attitude and his appeal caused a great awakening on the part of our own people that was most effective. Lord Northcliffe's hearty coöperation at all times, and his vigorous addresses delivered throughout the United States urging the people to get behind the ship-building program, proved most inspiring and helpful.

While our new merchant marine was built primarily for war purpose, at a cost of $2,900,000,000 it would have been a good business move to build the ships even if we had not gone to war. The money expended in the construction of the fleet will prove one of the most valuable investments ever made. Without it to-day, we would not be able to move our surplus farm and manufactured products to the markets of the world. Without it, the starving liberated peoples of Europe could not have been supplied with food after the armistice was signed.

The ships built to help win the war are now to be used in commerce; and let us hope that, in competing with other nations for a proper share of the trade and freight of the world, they will be employed with the same spirit of justice and fairness that prompted us in entering the Great War that has resulted in the rehabilitation of the American merchant marine.

To the Committees of the Senate and House of Representatives who had direct control over matters of legislation and appropriation affecting the Shipping Board and the Emergency Fleet Corporation; to the Secretary of the Navy and the Secretary of War, as well as the heads of other Departments with which the Shipping Board collaborated; to my colleagues on the Shipping Board; to the workers in the shipyards and the manufacturing plants that produced accessories and equipment, as well as to the ship-builders and manufacturers, their superintendents and foremen; to my personal staff; to Mr. Edward F. Carry, whose competent business capacity was utilized in the formation of the Division of Operations of which he was the first director; to Rear-Admiral Washington L. Capps, General Manager, to Mr. Charles M. Schwab, Director-General, to Mr. Charles Piez, Vice-President, to Mr. Howard Coonley, Vice-President, Commander James L. Ackerson, Vice-President, respectively of the Emergency Fleet Corporation; to Mr. Daniel H. Cox, Chief of Steel Construction; to Mr. James O. Heyworth, manager wood ship construction; to Edwin F. Gay, who organized the Division of Planning and Statistics; to Mr. P. A. S. Franklin, Mr. H. H. Raymond, and Sir Connop Guthrie, who constituted the Shipping Control Committee which made most effective the employment of our ships during the war; to Mr. John H. Rosseter, Director of Operation, who so skilfully placed the operation of the new fleet upon a peace basis, and whose counsel and advice were always most valuable; to Mr. H. M. Robinson, who, as Special Commissioner of the Shipping Board, with honor to his country and credit to himself conducted our shipping negotiations at the peace conference; to the chiefs and employees of all divisions of the Shipping Board and Emergency Fleet Corporation; and to the brave officers and sailors of the ships who daily risked their lives at sea in order that our boys might be transported and fed — to all of these I desire to make humble acknowledgment of deep indebtedness for their loyal, able, and patriotic services.

EDWARD N. HURLEY.

WASHINGTON, D. C.

FOREWORD

ALL civilized nations have about the same habits of life and require about the same articles of consumption. However, the resources of the world are distributed on an entirely different basis; and their re-distribution in conformity with the requirements of nations is the chief occupation of mankind. Every human activity is directly or indirectly part of this process, and upon the extent to which the process can be initiated within the borders of a nation is reckoned the nation's wealth. Upon the extent to which it is actually carried on, and to which the resulting surplus productivity enables the nation to draw upon the world at large for the good things of life, is reckoned the nation's prosperity. Whether any particular branch of a trade is domestic or international in character, depends upon geographical accident. In all cases the world, and not the nation, is the field — the ultimate reservoir of cause and effect.

Thus it has come about that no business man can judge the prospects of his industry without taking world market and transportation conditions into account, any more than he can operate a river steamboat without taking the world-wide lunar tides of the ocean into account. For a number of years the Southern cotton-grower has understood that he must do his planting with due regard for the world's statistical position. Since the first year of the war the farmer, too, has developed an interest in such things. He now keeps the Argentine, Indian, and Australian wheat figures at his tongue's tip. The same thing is true of the more progressive manufacturers. All know that conditions developing beyond the nation's borders may not only alter their prospects for disposing of surplus production abroad, but may also affect the conditions under which the bulk of their production is disposed of in the home market. The day in which any civilized nation could live unto itself has long since passed into history.

Our large exports, and the implied dependence of other nations upon the United States, have been a source of just pride with us for many years; but I have often wondered how many of our people realize the extent to which our country, in turn, is dependent upon other countries for the actual necessities of modern life. I do not mean only the tea, coffee, rice, sugar, and spices that are articles of every-day household use; but rather the chromium, iron, nickel, copper, sulphur, and manganese ores, and the kainit, potash, manure salts, guano, and nitrates that are imported each year by the tens of thousands, hundreds of thousands, and even millions of tons, and the rubber, gutta-percha, vegetable oils, corundum, plumbago, hard-woods, dye-woods, hides, wool, burlap, hemp, jute, and henequen that are also imported in large quantities. During the war almost all of these materials were rated "essential imports." and in order to provide for their transportation it was necessary to maintain a fleet of some 1,100 vessels whose aggregate tonnage was half again as great as that of the whole seagoing American merchant marine before the war.

At times the importance of assigning vessels to this fleet loomed as large as the necessity for assigning vessels to the transportation of men and supplies across the Atlantic; and, as chairman of the United States Shipping Board, I was frequently at my wits' end properly to coördinate these two activities of our limited supply of ships. More than once the matter assumed such grave aspects that it was necessary to lay the facts before the President. It was not necessary to explain to him the importance to the nation, of these essential trades either in time of peace or in time of war. He was fully informed concerning the economics of the matter. On one occasion he remarked: "I don't know why it is; but ever since I was a boy I have wanted to go to sea, which accounts, I presume, for my being so keenly interested in ships." Then he passed upon the question of national policy involved in the problem I had brought to him with encouraging sympathy, and with an understanding that showed he had not only been interested in ships, but also that he had studied ships.

From the purely American point of view, which it is now permissible to hold, the importance of supplying vessels for the essential import trades is more acute today than it was during the war. Civilization, broken down by the sword, is being rebuilt by ships. Ships naturally prefer to serve the nations whose flags they fly. Since the signing of the armistice, the many Allied and neutral ships that helped to bring us essential raw materials during the war have either been called into their own countries' service entirely, or else they touch at American ports only incidentally, and usually in quest of an outward cargo. Some of our industries have already begun to feel the effect of these withdrawals. The sugar shortage of 1919 was but a suggestion of what some of the calamities we may expect will be like if we neglect to provide regular American steamship service in our essential import trades. Applied to an industry, such a shortage would mean more than mere inconvenience; it would mean financial loss, unemployment, and distress. If we cannot depend upon foreign ships for this service now, we shall be even less able to depend upon them later, when the industries of their own countries are seeking to sell their products in the markets of the world.

The urgency of selling American goods in overseas markets, and of sending them there in American ships, is even more pressing. Notwithstanding a wide-spread impression, encouraged from quarters that should be better informed, this country has not grown rich while other countries were being impoverished during the war. No doubt the artificial abundance of money and credit during the war created an illusion of great wealth; and as long as it remains possible to turn capital over rapidly, this illusion can be maintained. But a very short period of industrial stagnation would bring about an abrupt awakening and a keen realization that the United States has shared — and has shared heavily — in the economic burden of assisting in winning the World War.

During 1915 and 1916 our people worked as no people ever worked before. Their labor made possible the unheard-of feat of uprooting and returning to Europe within two years, investments aggregating five billion dollars, much of which had been planted in American soil and yielding interest for half a century. Later they mortgaged their own future and their children's future in order to lend to Europe a sum of money between two and three times the size of the ancient European commercial investment that they had just uprooted and returned.

But our most reckless contribution to the winning of the World War was the spectacular expansion of the American industrial plant. The physical extent of this expansion probably can be guessed as accurately as it can be estimated, for it ran the entire gamut of human productiveness, from the gun factory and locomotive works, through the clothing and prepared food industries, to the manufacture of special surgical pins. At any rate, when the armistice was signed, our manufacturing capacity was consuming virtually all the raw materials we could produce and import; and the domestic production of such materials is usually reckoned as about half the world's production.

Practically all this plant expansion was financed on credit, predicated, of course, upon the winning of the war; and a large part of it is still in the form of some one's promise to pay. The extent to which this is true, and the necessity it imposes for rapid turnover in our industries, is well shown by the experience of one of the most important war factories, which was not a new concern, but had enjoyed a reputation for conservative management for many years before the war. During the summer of 1916 this company offered some short-term notes, and when the bankers called for collateral, the company could produce nothing not already pledged except some British war bonds of the latest issue. The following summer the same company wished to finance further expansion, but could do so only by selling 8 per cent. preferred stock at 96. Had the United States not entered the war in the interim, it is not probable that the money could have been had, even at that high price.

Unless some means is found to keep the huge American industrial plant producing at somewhere near capacity, the cost of its expansion, some ten billion dollars, is going to be worse than a war debt; it will be a war loss. Already our national debt is 23 billion dollars; England's national debt, minus her offsetting foreign investments, is 22.2 billion dollars; and the similar net liability of France is 33.5 billion dollars. Therefore, from the economic point of view, we already carry a greater burden than England in consequence of the German war; and if we fail to provide markets for the products of our expanded industrial plant, we shall have to add its cost to our present liability, and we shall soon be carrying as heavy a war burden as France.

For the time being, we are producing, while the principal nations of Europe are only just beginning to produce. Exchange disparity, credit rating, and practically all other differences are predicated chiefly upon this circumstance, and not upon the relative volume of national debts. All these differences will melt away as Europe resumes production and begins to export goods. Similar burdens of debt will then impose similar commercial limitations upon both Europe and the United States. We shall enjoy no advantage over Europe. We shall face the future on absolutely equal terms.

Already the ships of Europe are bringing raw materials to Europe, and while engaged in these voyages they are opening up once more the old markets for Europe's commerce. Also, they are creating European good-will in other markets, where they expect soon to resume their former practice of loading goods for American consumption and selling European goods in exchange. This will be helpful to Europe, for it will insure that constant employment of European domestic industries which enables nations to meet the interest charges of their national debts with ease, and to be currently prosperous notwithstanding their debts.

But what of America? Are we not equally faced with the necessity of providing constant employment for our domestic industries? Our own people cannot consume much more than one half of what our greatly expanded industrial plant can produce. What would happen to this enormous industrial plant, built on credit and operated on credit for five years, if Europe should say to us: " We have no more need for your goods, thank you. We can now get along nicely without them "? Unless American ships do for America exactly what European ships are now doing for Europe — and unless they do it quickly — the answer is going to be over-production, unemployment, and liquidation, The contents of our bulging grain-elevators and warehouses may have to be sold at any price offered. And it may be the American dollar, instead of the miscellaneous currencies of Europe, that will be quoted in the markets of the world for a fraction of its nominal gold value.

With the aid of American ships, American producers can dispose of their surplus goods by helping to restock the empty shelves and to fill the empty larders of four continents and many archipelagos. Asia, Oceanica, the Indies, the South Sea Islands, South America, and Africa — all possessed of large quantities of things that make life easier and happier for Americans — need large quantities of the things that Americans produce. In the countries where we buy our essential raw materials, we can find ready and anxious markets for our surplus production of many useful articles. And there are many others. Virtually all of them have had very few supplies, from either Europe or America, since the Great War burst upon the world in 1914. Surely Europe cannot supply all these markets, ships or no ships, even after she regains her full former productive capacity.

Thus the problem of the American people, in keeping their great industrial plant going by disposing of surplus products overseas, is not so much a problem of competition with Europe as is commonly supposed. It is rather a problem of deciding upon the overseas markets that we wish to cultivate, and then of putting into commission the means for establishing regular and uninterrupted transportation service between those markets and the United States by means of American ships.

But our efforts should not be confined to supplying ships for handling our current trade with these markets. The foreign ships used to do that, and their perfunctory coming and going accomplished nothing constructive, either for the people of the overseas market or for the people of the United States. American ships, operated by American citizens in the interest of American commerce and of America's customers, would do differently. They would have the development of the overseas market at heart, as well as the promotion of American trade. In fact, these two propositions are essentially inseparable.

This consideration leads, naturally, to speculation about American opportunity for participation in the great industrial development that is certain to take place throughout the world in the next fifty years. There was a tome of wisdom in the parting words of Georges Clemenceau, the French tiger, to his constituents: "Work, and raise children." The Great War has taught the world many lessons, not the least of which is the value of high industrial development. This lesson has permeated to the utmost parts of the earth. In China, and even in Afghanistan and Thibet, the leaders of the people are preaching the gospel of work and intensive development.

United States history, within the recollection of many men who are at the head of great industries to-day, furnishes plenty of incidents that may be cited to indicate what great fortunes can be made rapidly from the development of a new country. During the great railroad-building and industrialization period, between 1870 and 1900, the American national wealth increased from thirty to ninety-five billion dollars. Even during the decade in which the devastating Civil War was fought, the national wealth almost doubled In view of these facts, it does not require the exercise of much imagination to visualize something of the opportunity that awaits the peoples of the nations that take part in the intensive development of India, China, South America, and Africa through their banks, their engineers, their products, and their ships in the next half century.

Already American enterprise has laid the foundation for some of this work. For more than twenty years the companies that now compose the great United States Steel Corporation have been building the framework of a permanent system which now supplies every part of the habitable globe with American steel in every imaginable form. This corporation has 268 offices in 60 foreign countries, and 40 foreign warehouses. Some idea of the success with which this selling organization works may be gathered from the fact that in 1913, the last normal year, it disposed of 2,500,000 tons of American steel at a cost of eight tenths of one per cent. of the invoice value of the steel.

The warehouses are situated at strategic distribution points throughout the world; that is, at points upon which the ships of all nations habitually converge in search of cargoes. By advantage of the existence of these points, the quickest, surest, and most economical distribution possible is obtained. In each of these warehouses thousands of tons of material are kept in stock. They are situated at such points as Antwerp, Copenhagen, Barcelona, Johannesburg, Valparaiso, Callao, Sydney, and Singapore. The warehouse at Copenhagen supplies regular customers as far north as Iceland, while that at Callao supplies the markets as far south as the Straits of Magellan.

Recently some bridges fabricated in the United States were sent through this world-embracing system to Christmas Island, four hundred miles south of New Zealand; and through it also the material for a steel sugar-factory was sent to one of the Fiji Islands. In order to make sure that the American material would give satisfaction, American erectors were sent along to set it up. Every steel building in Buenos Aires was erected by American engineers with American steel. The steel warehouse system is constantly distributing steel rails, ties, telegraph-poles, wire, nails, bonds, fishplates, bolts, spikes, nuts, and everything else that goes into a railroad, to every part of the habitable globe. The seven-pound packages of small wire nails, which are sold to followers of the Prophet by the bearded merchants who sit cross-legged in the bazaars of Bombay, are put up and sealed in Allentown, Pennsylvania.

This is export trade! It is also development work.

But even the resources and the prestige of the great United States Steel Corporation have been found powerless either to develop or carry on overseas trade without the aid of ships under Steel Corporation ownership and control. Like every other American exporter, the Steel Corporation never has been able to depend upon foreign ships to any greater extent than happened to suit the convenience of those ships when they were out hunting for cargo to avoid making a voyage in ballast. Even in the days before the war, when ships were supposed to be plentiful, the United States Steel Corporation never permitted itself to be caught without at least forty-five vessels in its service, some owned by the corporation; others under charter; but all kept at its absolute disposal.

Bearing in mind the exporter's maxim that one product sells another, it is easy to imagine that great things could be accomplished by backing up such a system as the one already laid out by the Steel Corporation with fleets of American ships carrying all sorts of American products. It probably would not be necessary to sell in any markets other than those in which the Steel Corporation already has established American good-will, in order to develop in a very short time permanent customers for a large part of our surplus American production. The native of Java, Sumatra, or Borneo, who sleeps in a hut made of American galvanized sheet iron, and works in a tea-drying house made of American structural steel, or the Australian who notoriously prefers the American oval nail to the round nail of the British steelmakers, will not need much persuasion to induce him to buy something else of American origin.

The world is a large planet, and scattered over its surface are many peoples with many interests and many needs. The opportunities that await the peoples who study the interests and administer to the needs of the other peoples are correspondingly large and numerous. But none of these opportunities can be realized upon until it can be reached. In so far as America's opportunity is concerned, the question always gets back to the basic principle: American ships for American trade. Thanks to our former policy of keeping to ourselves and of ignoring what was going on in other parts of the world, we are now in a position where, without American ships, serious over-production and widespread unemployment would be staring us in the face. But, looking at the other side of the picture, with American ships at our disposal we can contemplate a future of undreamed-of prosperity.

It has recently been my good fortune to serve my country in a capacity that brought me into close contact with the forces that are planning and developing the world trade and shipping conditions of the immediate future. My observations and my studies have made some profound impressions upon my mind. In consequence of these impressions, I am devoting this book to an effort to induce all who read it to shake off the shackles of our introspective past, and to think of American commerce and American prosperity in terms of American ships. There are only two kinds of civilization: that of (say) England or Switzerland on the one hand, and that of Afghanistan and Thibet on the other. The difference between them is ships.

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THE
NEW MERCHANT MARINE

THE
NEW MERCHANT MARINE

CHAPTER I

OUR PAST GLORIES ON THE SEA

OUR country is preëminently equipped by nature to be a nation of ships; our people a seafaring race. Almost the first industry established on our shores was the building of ships. The phenomenon was not local; nor did it develop at one place in consequence of successful example set elsewhere. It was universal and spontaneous. By the middle of the eighteenth century, twelve of the thirteen colonies lying along the Atlantic seaboard possessed regular shipyards, and each colony was producing from 2 to 137 bottoms a year. In the year 1769, Lord Sheffield's "British Review of American Commerce" placed the total annual output at 389 sea-going vessels, aggregating 20,001 tons' burden. Considering that a thirty- or forty-ton vessel was a serviceable ocean trader in those days, when the bulk of the great British merchant marine averaged below eighty tons, this is a very creditable showing.

The men who undertook the construction and operation of these ships in every avenue of world commerce were, at most, only one generation removed from the British, Dutch, Spanish, and Scandinavian origins whence they came; and each of these races, in reverse of the order named, is on record in history as the dominating world influence on the sea. When they landed upon our shores they found ready at hand the most complete assortment of ship-building materials they had ever beheld. White oak for frames, yellow pine for planking, ash and locust for fastenings, and tall, straight white pine for masts and spars, grew in abundance. Pitch, rosin, and other so-called naval stores were likewise plentiful and within easy reach. Nothing but the relatively few copper fastenings necessary, and the will and the skill to turn out the finished product, remained to be supplied. These things the colonists brought with them.

Of course, the birth and growth of this early American industry had their reactions upon ship-building in Europe. As early as the winter of 1724–25, the ship-builders of the Thames district met in London and formally complained to the Lords of Trade as follows:

> In the eight years ending in 1720 we are informed that 700 sail of ships were built in New England, and that in the years since as many, if not more; and that the New England trade, by the tender of extraordinary inducements, has drawn over so many working shipwrights that there are not enough left here to carry on the work.

In connection with this typically American development within the industry, it is interesting to note some equally type-true American results. It is a matter of record that prior to 1775 a white-oak vessel built in New England cost in the neighborhood of $24 a ton, and a live-oak vessel about $38 a ton. But in Great Britain or on the continent of Europe no oak ship could be built for less than $50 a ton. This goes far toward explaining the export business the American colonists built up in ships. Of 1,332 vessels listed in the archives of the State House at Boston as having been built between the years 1674 and 1714, 239, or almost one in six, are recorded as sold to foreign owners.

Once possessed of ships, the American colonists with characteristic energy struck out for trade. They did not seek their commerce through or by the grace of the mother-country, after the traditional manner of colonists; nor were they content to confine their voyages to the beaten paths of trade. In addition to covering with their own ships all the established trade routes of interest to them, they engaged extensively in pioneer operations in parts of the world that had not yet been opened up to trade. They sailed direct to the Cape of Good Hope, and to Hindustan, Java, and Sumatra. Through the Dutch in the Indies, they carried on an early trade with Japan. Madagascar, New Holland, and New Zealand were among their regular ports of call. Theirs were among the earliest ships on the coast of South America, and on the west coast of Africa, where they were long the masters of the situation.

In the development of this remarkable commerce, our forefathers proceeded along simple, direct, and logical lines of reasoning, planning, and action. They needed certain things, and they had certain other things to sell. The trade was theirs. They would conduct it themselves and in their own way. If their operations did not conform to the methods practised in Europe, or if they failed to respect the prerogatives of some European vested interest, that was Europe's affair. They took no account of it.

As a matter of fact, the American colonists established and developed their merchant marine on a basis that differed materially from that upon which ships were ordinarily operated in Europe at the time, and the inherent soundness of which did not begin to dawn upon the world at large until the highly organized national competition of the twentieth century brought the merchant marine situation into bold relief. Briefly, they went back to first principles and regarded the ocean-carrying trade, not primarily as a business by itself, but rather as part of and a necessary instrumentality of the commerce it served. The shipowners, as a rule, were first and chiefly merchants. The greatest of them owned entire fleets personally. The smaller ones with kindred interests combined in the ownership and operation of fleets. As a rule, they did not carry freight for others. In describing the great merchant-shipowners of Salem, Winthrop L. Marvin in his fascinating "History of the American Merchant Marine" says:

> When Mr. Derby or Mr. Grey or Mr. Peabody built a ship, he calculated to use it in his own mercantile ventures. He would furnish it with an outward freight, and the sale of this procured a homeward cargo which the merchant would dispose of from his own warehouses. Mr. Derby owned about forty vessels, and the largest of them made about forty-five voyages for him to India and China. Most of his enterprises were very successful. In 1799 the ship *Mt. Vernon,* sailing to the Mediterranean with sugar, and returning with wines and silks, earned a net profit of $100,000.

In addition to these major fleets, closely owned and operated by the producing and merchandising elements, there developed a "floating tonnage" of considerable sail and capacity. For the most part, these vessels were owned by the masters who sailed them, often in partnership with the mates and members of the crew. Other such ships were owned by partnerships of citizens as investments. They sometimes went to sea on ventures of their owners; but more often they were hired or chartered by the voyage to the large merchants whose own fleets, for the time being, were not sufficiently large to handle all the business in hand. Such a thing as a line of ships sailing a definite trade route, with no other interest in the trade than the collection of freight charges on the cargo offered, was unknown on this side of the Atlantic, although the fore-runners of such a system of ocean-carrying had already begun to make their appearance in Europe.

In fact, it seems to have been this rock upon which the overseas carrying systems of the world split, and the bitter rivalry of the last two centuries, which need not have existed at all, was kindled and swiftly fanned into flame. Early in the eighteenth century the business of the British mercantile houses became so large that its strictly mercantile aspects required all the attention of the owners of the business. Gigantic organizations like the East India Company, working only one trade route, continued to operate their own ships; but the practice was rather generally abandoned by those of lesser magnitude, which still were many times larger than any such enterprise extant on this side of the Atlantic. Tremendous importations, reladings, and reëxportations over labyrinthine trade routes became too complicated for the central merchandising establishment to administer. Ship-operating companies sprang into existence to relieve the congestion. At first they served the merchant on a share basis; but later they increased in size, and undertook to serve several merchants at once in a given route, taking their pay at the rate of so much a measurement ton for cargo lifted. In this way European shipping became separated from European trade.

Perhaps in similar circumstances the American merchant would have solved his problem differently. He might have continued to operate his ships through a subsidiary organization, or he might have combined with other merchants and organized joint subsidiary companies, each company operating the commonly owned ships in a particular field of trade, sometimes on particular ventures and sometimes on joint ventures. At any rate, the persistence with which the American merchant let the new European system severely alone, and intensified his operations along his own lines of action, seems to indicate that in no circumstances would he have given up the control of his carriers altogether.

The baneful effect of the separation of commerce and shipping in Europe soon made itself felt throughout the world. European mercantile initiative began to decay. The merchant could not rely upon the new ship company as he had been accustomed to rely upon his own ships. The ship companies had not the resources of the great mercantile organizations; nor had they the interest in the trade. If they sustained a loss, they would not come back. They invoked insurance protection to an extent unknown before, and they compelled the merchant to carry expensive insurance protection, where under the old conditions he had felt safe in relying heavily upon his profit-and-loss account.

Ocean transportation became more and more costly to the European merchant, and the American merchant-shipowner, unaffected by any of these things, continued to develop new fields of trade, and steadily acquired a competitive advantage everywhere he went. Jealousies developed and multiplied. The European merchant wanted the ubiquitous Yankee excluded from competitive trades. The European shipowner demanded legislation to protect his ships from Yankee competition. Both received almost everything they asked for, in so far as it lay within the power of government to give it to them. From this period down to the time when the Civil War and the revolution in ship construction and propulsion crushed the American merchant marine out of existence, the history of world commerce teaches over and over again, in many forms, the lesson that American enterprise, once organized and set going, cannot be turned aside from a successful career by all the obstacles that human ingenuity can devise and lay across its path.

As early as 1668, Sir Joshua Child, a typical seventeenth-century British economist, once chairman of the East India Company, wrote in his "Discourse on Trade": "In my opinion there is nothing more prejudicial, or in prospect more dangerous, to any mother-kingdom than an increase of shipping in her colonies." But his countrymen had not waited for this advice to begin efforts to stifle the growing ocean trade of the American colonies. In 1661 Parliament limited the colonial products that might lawfully be transported, and two years later it was proclaimed that no European commodity could be imported into the British plantations unless laden in Great Britain on board British built shipping of which the master and three fourths the crew were British. One of the first acts of the reign of George III was to forbid the importation of sugar from the colonies in other than British vessels. These two laws sought to destroy the direct trade of the colonists with the continent of Europe, and also their West India trade. Both were ignored, sometimes successfully and sometimes at the cost of a splendid ship and her cargo. But both laws remained in force until the day of American independence.

But the early years of the American Republic were filled with more serious and more disheartening difficulties for the American merchant marine. During the War of the Revolution, successful privateering, which resulted in the capture of three times as many prizes as were taken by the navy, had kept American maritime spirit alive. Upon the return of peace, our mariners, feeling secure in their newly won independence, planned more adventurous voyages than any of which, as colonists, they had ever dreamed. Fear of the American ship-building industry led England to forbid British subjects to buy vessels built in America. At the same time, an Order in Council restricted the materials that might be imported into England in American ships to crude materials such as pitch, tar, turpentine, indigo, and ship-building lumber.

Our shipping did not suffer nearly so heavily from these restrictions of relatively narrow application as from the general effects of the continuous war between France on one hand and England and the whole continent of Europe on the other, which raged with intermittent fury from 1793 to 1815. Each combatant forbade neutral trade with the other, or with the other's colonies. The American merchant-shipowners were faced with the alternative of laying up the bulk of their fleets, or of risking capture and condemnation. They chose the latter. For more than twenty years our merchantmen were pounced upon and seized by the cruisers and privateers of nations with which we were at peace. During most of the period we had no navy to protect them.

By this time preying upon American commerce had become a world-wide maritime diversion, and a profitable one in the bargain. In some instances our ships with rich cargoes on board, were enticed into Continental harbors by the official assurance of peace between some country and France. Then they were summarily seized and turned over to the French emperor as part of the indemnity due France from the war just ended. Thiers's history says that, after the humiliation of Prussia in 1806, Napoleon himself suggested this extraordinary proposition to the Prussian king in writing. Our own history shows that the suggestion was carried out to the full extent of its golden possibilities, and to the tune of more than one hundred ships in one year. Compared to the cost of these outrages, the ravages of the Barbary States, over which we went to war, were as nothing.

Nevertheless, it is a fact that between the years 1789 and 1815 the American merchant marine attained its most rapid growth. Losses by confiscation, however large and however discouraging, were offset by certain potential advantages upon which the Yankee shipowner was quick to seize. The fleets of belligerent nations, as in the recent World War, were needed more and more in the European trade to bring to England and her ever-changing array of allies the sinews of war. Gradually, but surely, the cruisers of each side destroyed the merchant tonnage of the other. England alone kept building rapidly enough to maintain anything approaching a sufficient fleet. This gave to the American merchant marine a large share of the world's trade and a practical monopoly of American trade.

In 1789 our ships carried 23.6 per cent. of our combined imports and exports. This percentage mounted steadily, with occasional variations, until it mounted upward through the seventies and eighties to 92 per cent. in 1807. During the war with England the trade itself was paralyzed; but immediately afterward the percentage carried in American bottoms sprang into the eighties, where it remained for many years. During the period of the European wars, too, our sea-going tonnage registered for the foreign trade increased from 123,893 to 854,295.

This is the simple story of what organized and determined American enterprise can accomplish in the most unfavorable circumstances. Its particular lesson, in the light of present-day conditions, is that a merchant marine, in order to perform its functions properly, must be so owned, organized, and operated that its success and growth can consistently be maintained, if necessary, even by the deliberate sacrifice of ships themselves.

From the close of the European wars until long after the advent of steam, the history of the American merchant marine is a continuous record of glorious achievement, including many maritime innovations. A Boston merchant, named Tudor, undertook the experiment of carrying New England ice to the tropics. His venture was a success, and in 1815 he obtained a profitable monopoly supplying ice to the city of Havana. In a short time he spread his business all over the West Indies. Then, by means of careful packing and unheard-of audacity, he went after the East Indian ice trade. He soon established a thriving export trade carrying Massachusetts ice to Calcutta. The business prospered for more than thirty years. Its very existence was such convincing evidence of the reliability and speed of American sailing-craft that it was influential in giving to Boston ships the mastery over a great deal of the Calcutta trade.

Then, there was the American whaling industry. Our people learned the highly skilled art of whale-hunting from the Indians, and developed their double-ended whale-boat operations as a result of watching the Indians harpoon, play out, and finally kill whales from their small bark canoes. Then the colonists learned the habits and feeding-grounds of the whales, and followed them offshore, changing the hunting of whales from a sporadic activity of 'longshore people into an organized large-scale business of seafaring men. The New York colonists took the lead, but the business spread rapidly to Nantucket and other New England communities. New Bedford became the fitting out and business center of the industry.

In the early years of the eighteenth century the hunting-grounds were confined to a large triangle whose vertices were the Gulf of St. Lawrence, the Virginia Capes, and the Azores Islands. As time went on, better hunting-grounds were discovered in the Arctic regions and off the west coast of Africa. It was the common practice of the Arctic whalers to go north in the late summer; allow themselves to be frozen in during the autumn and winter; get their catch with the breaking up of the ice; and return home at the expiration of a year. The net earnings of these voyages varied between $30,000 and $60,000. All members of the crew shared in the earnings. So thoroughly did these sturdy adventurers cover the earth that to-day the Eskimo on the north coast of Alaska — the very "top of the world" — calls all white men "Boston men." They scoured the South Atlantic, South Pacific, and Antarctic waters in the same way.

The primary purpose of the whaling industry was to recover whale oil; the second, whalebone. So nearly complete has been the substitution of other, cheaper oils for whale oil, in the development of the industries, that the present-day whaler recovers only the bone. Even the number of whalers has been greatly decreased in all nations; and the use of the explosive shell in small cannon in place of the ancient harpoon makes the number of hunters necessary to supply the world's demands less and less as the years go by. In the year 1842 the world's total whaling fleet numbered 882 sail, of which 652 flew the American flag.

During this period, too, steam propulsion and its concomitant, the famous American clipper-ship, made their appearance. The first steam vessel to cross the Atlantic was the *Savannah,* American-built and American-owned. She partly steamed, partly sailed, from New York to England, thence to St. Petersburg, and back to New York. However, she was favored with so much fair wind that her captain did not use his steam power enough to produce a convincing record. But the voyage was destined to be barren of results for two other reasons: the marine insurance companies declined to underwrite a steam-vessel in the trans-Atlantic trade, on the ground that fire was well known to be the most common cause of total loss at sea; also, the simultaneous and highly spectacular performance of several of the new American packet-ships side-tracked the American sea-going mind.

These packet-ships were not built for extreme speed. They had the necessary bluffness and freeboard to enable them to carry on during heavy weather in the North Atlantic, but their under-water bodies had almost the fineness of yachts. They were intended to establish, and did establish for the first time in history, regular lines for passengers, mail, and package freight between American and European ports, sailing on predetermined schedules. There were three lines sailing out of New York: two to Liverpool and one to Hull. Later, six or seven additional lines were established connecting New York, Philadelphia, and Boston with Havre, London, and Liverpool direct. Their speed exceeded builders' and owners' expectations, and their average adherence to schedule was not approached, even by steam-vessels, until many years after the future supremacy of steam became acknowledged.

Europe could produce nothing to compete with these vessels, and made no attempt to do so. At that time the price of a 500-ton sailing-vessel, fully equipped, was \$37,500 in this country and \$43,000 in England. In addition to the superior sailing qualities of American vessels, this was a strong reason why British owners came to the conclusion that the British sailing-vessel was permanently outclassed, and that no further effort was made to compete in producing them. Moreover, the estimated annual cost of operating such an American vessel at that time was reckoned at \$10,955, compared with \$13,115 for a similar vessel under the British flag, notwithstanding higher American wages. This is why, crease or to duplicate the subsidy it had granted to the Collins and other lines for the express purpose of neutralizing the Cunard monopoly. Moreover, the gathering clouds of the Civil War caused Congress, as well as the shipowners, to be cautious.

Our merchant marine at this time had reached the zenith of its size, glory, and power. Our flag was on every highway of commerce. Our total ocean-going tonnage had reached 2,496,894. Even our new steam fleet closely approached the size and exceeded the efficiency of England's. Then came the Civil War. Between the ravages of the Confederate cruisers, the demoralization of our industries and commerce, the sale of our vessels into foreign registry, and the bankruptcy of many of our shipowners, almost half of our merchant marine was wiped out. Only 1,486,749 tons of ocean-going shipping remained under our flag. Meanwhile England's shipping had grown in 1870, to 16,685,551 deadweight tons.

Most of our tonnage either was or soon became obsolete, because, during our four years of industrial and commercial paralysis, not only had steam definitely supplanted sail, but iron and steel had definitely supplanted wood. Before our flag could sail the seas again, we would have to make extensive developments in the steel industry, construct steel shipyards from the ground up, and raise sums of money that, in our shattered financial condition, manifestly could not be raised. Our people were obliged to turn their attention to the development of internal resources in order to recoup their capital. The passage of each of the fifty-five years that have elapsed since the débâcle has rendered more and more difficult our country's return to its heritage on the sea.

CHAPTER II

ORGANIZATION OF THE UNITED STATES SHIPPING BOARD

FOR half a century, embracing the period from the close of the war between the States to the beginning of the great World War, the American merchant marine, as far as vessels engaged in the over-seas trade was concerned, was scarcely the equal of a third or fourth-rate power. American travelers abroad beheld, to their dismay and chagrin, in the principal ports of the world, the flags of virtually all nations except their own. Our tonnage, with what might perhaps be termed a few notable exceptions, consisted of the carriers on the Great Lakes (especially constructed for fresh-water service and therefore unsuited for ocean transportation, had it been possible for them to go through the Welland Canal) and the vessels in the coastwise trade and the trade to the West Indies. The vessels in the coastwise service, which included our insular possessions of Porto Rico, Hawaii, and Alaska, were protected by a wise provision of legislation, which gave them a complete monopoly of American port to port trade. This protection, however, was suspended after we entered the war when, owing to the shortage of tonnage, it became necessary for the Shipping Board to withdraw vessels from the coastwise trade and place them in the trans-Atlantic service, Congress passed a statute that allowed vessels flying foreign flags, upon receiving permission of the Shipping Board, to engage in transporting products from one American port to another.

From time to time, throughout the twenty-five years immediately preceding the European War, feeble and futile efforts were made to reëstablish and rehabilitate our merchant marine. Unfortunately, all of these attempts to revive the building and the operation of American ships in overseas trade, until the passage of the Shipping Act of September 7, 1916, were accompanied by ill-concealed designs to take money from the public treasury with which to foster and aid private enterprise. Every legislative move in this direction was coupled with some form of government subsidy. Sometimes it was a bold and direct assault upon the government's exchequer; but generally it assumed the guise of payment for carrying the mails, in sums wholly unwarranted by the service to be performed.

Such methods met with popular resentment, and rightly so. Public sentiment would not accord its approval to any program for the revival of merchant shipping which included a scheme contemplating federal aid in the form of money payment to ship operators. In consequence, every effort on the part of Congress to enact legislation of this character met with signal failure. The statesmanship of the day did not seem equal to the task of devising a plan that would restore the United States to its place upon the high seas without government subvention. Neither did it make serious effort to clear away obstacles but for which private enterprise, on its own initiative and without a subsidy, might have been more willing to undertake the work of rehabilitating the merchant marine.

Every year of inaction, or of failure where action was attempted, made the effort still more difficult. Patriotic feeling in having the American flag upon the high seas nearly ceased to exist. Enthusiasm in having ships upon which to transport our surplus products to foreign countries became almost *nil.* Instead, there arose throughout the country a false pride in what, for want of a better term, might be called trade seclusion. The great movement of immigration began to fill the country with customers here at home, and in our efforts to monopolize their trade our producers steadily forgot, or at least neglected, the opportunities of foreign trade that could be carried on successfully only through the medium of American-owned and -operated ships. The internal development of the country's resources, of course, had much to do with this attitude; but, at the same time, this growth should have contemplated trade expansion beyond our own domains and a larger participation in the world's commerce.

Whenever the subject of systematic expansion of our foreign trade was mentioned, it was generally met with the objection that facilities for the development of foreign trade were inadequate; but always it was pointed out that, even if all other facilities and conveniences and requirements were provided, the ships necessary for any material expansion that might be contemplated were lacking. So American producers were, for the most part, more or less content that their surplus goods, when sold abroad, should be transported in foreign bottoms, a condition that is always a handicap to any nation seeking to compete for the trade of the world.

It was this condition of affairs with respect to the American merchant marine that prevailed when President Wilson took office. One of the first of his recommendations to Congress for remedial legislation had to do with this subject. Even his first attempt to get action met with failure, so poorly was Congress prepared with a thorough understanding of the subject to deal with it. But the spirit of the American merchant marine was not entirely dead. There were some thoughtful and far-seeing men in whom it still lived, and one more defeat did not swerve them from their purpose nor dull their determination for ultimate victory. In this connection, I deem it but justice, and therefore my duty, to pay a tribute to the late Bernard N. Baker, who was the real father of the Shipping Act of September 7, 1916, under which the Shipping Board was created, and by reason of which a body was organized and ready to undertake the task of providing ships when the war emergency arose. Nor should I fail to say that, but for the untiring efforts of Senator Duncan U. Fletcher, Chairman of the Senate Committee on Commerce, and Representative Joshua W. Alexander, Chairman of the House Committee on Merchant Marine and Fisheries, the legislation so strongly urged by President Wilson might even then have failed.

What superior position of advantage the Shipping Board might have been in to handle the problem thrust upon it with the advent of the war, had the Shipping Bill been enacted into law six months earlier when it was first before Congress, I will not attempt to say; but it is apparent without argument that it would have had that much more time in which to effect its organization, and would in consequence have been so much better prepared to undertake its work.

But the Shipping Act of September 7, 1916, was essentially peace legislation. The United States had not at that time entered the World War, and the measure represented to a large degree what President Wilson believed to be the first step in constructive legislation necessary for the promotion and development of the American merchant marine. The powers that it vested in the Shipping Board created under its provisions were chiefly regulatory, with further authorization to make additions to the merchant marine. In the light of events even then foreshadowed, or in view of the ocean competition of other maritime nations, the means placed at the disposal of the board for vessel increases were meager indeed.

The board was empowered to organize a corporation, capitalized at fifty millions of dollars, for the construction of ships. The capital was to be derived from the sale of Panama Canal bonds, then in the treasury unsold. When America took her place beside the Allies in the struggle to preserve civilization, it became necessary to expend more than this sum for the mere construction of one shipyard, and again more than that amount for the purpose of providing housing facilities for the men employed in the building of ships.

It was clearly not the intent of Congress that the Shipping Board should engage in the operation of ships. Whatever sentiment there may have been among the legislators for a program of government operation of a merchant marine was expressly eliminated by the specific provision contained in the law that the ships acquired by the board, by construction or otherwise, should not be operated by "any corporation in which the United States was a stockholder," unless it should prove impossible to obtain private enterprise to purchase or charter them under terms and conditions that the board should approve. Congress thus defined, in terms that cannot be misconstrued or misinterpreted (and the debates on the bill in both the Senate and the House are fully confirmatory), the peace policy of the country with respect to the operation of the American merchant marine. It did not intend that the vessels should be either owned or operated by the government, unless it should be found impossible to enlist private capital and interests in the shipping enterprise.

The Shipping Board had scarcely had opportunity to effect its organization and to begin a survey of its prospective duties before our entrance into the war, on April 6, 1917, changed the entire aspect of its task. Its first important undertaking thereafter was the formation of the Emergency Fleet Corporation, a corporate body chartered under the laws of the District of Columbia. It was appropriately named, for a great emergency was before the nation and the world, and the building of ships was the prime essential to meeting it. But, having been designed in the Shipping Act as a peace agency of the government, it could do little more at its inception, because of its limited powers and small financial resources, than to lay the ground-work for future gigantic operations by forming the nucleus of an organization while awaiting a further grant of powers, authority, and money by the Congress. These were provided in the emergency fund section of the act of June 15, 1917, which conferred upon the President far-reaching authority to requisition, construct, and operate vessels without limitation or conditions, except such as might be circumscribed by appropriations. These powers were extended directly to the President, and not to the Shipping Board or to the

Emergency Fleet Corporation. The act provided, however, that the President might exercise the powers vested in him through such agents or agencies as he might from time to time determine, and that all vessels constructed, purchased, or requisitioned under the authority of the act, or theretofore or thereafter acquired by the United States, should be managed, operated, and disposed of as the President might direct, without any limitation upon his decision.

President Wilson in turn, by executive order, on July 11, 1917, delegated directly to the Emergency Fleet Corporation all powers and authority vested in him relating to the construction of ships; and to the Shipping Board he delegated all his power and authority to acquire vessels already built, and to operate, manage, and dispose of all vessels theretofore or thereafter acquired by the United States.

It thus transpired that, throughout the period of the war and of the building of the Emergency Fleet, both organizations, the Shipping Board and its creature, the Emergency Fleet Corporation, functioned only in minor part under the original Shipping Act, but rather under the larger and far broader powers conferred by Congress upon the President, and by him delegated to these two agencies.

Although the President's delegation of power and authority to each body was complete, there was never a time when he did not assume responsibility; nor did he ever cease to manifest the keenest interest and concern in the conduct of these organizations, and in the building and the management of the fleet, and in all of the intricate problems that were involved. That he could, with all of the other exacting duties and responsibilities incident to the exigencies of a great war, have maintained his intellectual grasp upon the ship-building and shipping situations as they developed with kaleidoscopic rapidity, was to me but another evidence of his marvelous mentality and capacity for doing things. His ever-ready coöperation and guidance, as well as his enthusiasm in the work of building the great fleet, was an inspiration that gave both faith and courage to the thousands of loyal workers who made the undertaking possible of accomplishment.

The President's original selection of men for the commissioners of the Shipping Board seemed most admirable, and was made after a careful and painstaking consideration of the qualifications necessary for the work. It consisted of Mr. William D. Denman of California, Mr. Bernard N. Baker of Maryland, Mr. John A. Donald of New York, Mr. John B. White of Missouri, and Mr. Theodore Brent of Louisiana. It represented composite ability.

Mr. Denman, who was chosen by his associates as chairman of the board, and by virtue of that office became president of the Emergency Fleet Corporation, was a lawyer of the highest standing and ability on the Pacific coast, having a liberal knowledge of admiralty, a broad business experience, and withal a force of character essential for successful administration.

Mr. Baker, with a lifetime of experience in the shipping business, had perhaps more than any other private individual advocated measures to rehabilitate the merchant marine. He had seen many of the fundamental principles that he had advanced written into the law. He resigned, however, almost immediately after his appointment was confirmed by the Senate, and his place was filled by the nomination of Mr. Raymond B. Stevens of New Hampshire, a former member of the House of Representatives, later counsel for the Federal Trade Commission, and a deep student and thinker on the pressing problems involving material development.

Mr. Donald brought to the board a wealth of intimate and detailed knowledge of the intricacies of ship operation, having himself from boyhood been engaged in Great Britain and in America in ship-operating enterprises. This knowledge was of invaluable assistance to the other members of the board throughout all the operation of our fleet during the war.

Mr. White and Mr. Brent were both men of special fitness, the former being conservative, strong, and thorough; and Mr. Brent having, what was particularly needed at the time and in the emergency, an enthusiasm and an untiring energy that made him a driving force in the organization.

Major-General George W. Goethals, the builder of the Panama Canal, who had gained a world-wide reputation as a doer of big things even in the face of seemingly insurmountable obstacles, was chosen as general manager of the Emergency Fleet Corporation by its governing body, the Board of Trustees. His selection gave to the country a feeling of assurance and confidence that, huge as the task was — although there were then few to realize and appreciate its magnitude — it would be successfully accomplished and would reflect credit upon American enterprise and ability.

The formulative stage of any great organization is not infrequently the most difficult and trying, and beset with many problems which, when development has taken place, might be smoothed out and solved more or less as a matter of routine by adhering strictly to an adopted policy. Two strong men, each of resolute intent to accomplish a like purpose, often have different ideas and methods of attaining the desired end, and each may be as conscientious as he is firm. It was so with the Shipping Board and the Fleet Corporation. Scarcely had they embarked upon their enormous undertaking before issues arose that subsequently led to the reorganization of the personnel of the board.

I have always believed, however, that the so-called Denman-Goethals controversy was not so much a matter of temperament, of the inability of these two forceful men to harmonize their views and opinions and cooperate in their work, as it was the result of a faulty scheme of organization, which, in the haste to get under way, was not given proper attention.

It has been popularly supposed that the rock upon which Mr. Denman and General Goethals split was the question of the building of wood ships. The facts and the records do not substantiate that supposition. It is true that Mr. Denman earnestly urged the construction of wood ships, and that General Goethals strongly opposed such a program, pointed out what he believed to be the fallacy of such an undertaking, and publicly and bitterly denounced the purpose upon which the chairman of the Shipping Board was intent. He was a steadfast and consistent advocate of the building of nothing except steel vessels. In the light of all the circumstances, and even with a full knowledge of what has since happened, and viewing the situation as it was only possible for them to view it at that time, I can see good and sufficient reasons why each should have maintained the attitude that he did with respect to the issue of wood ships.

While I have no authority to speak in this matter either for Mr. Denman or General Goethals, and am not presuming to set forth the arguments of either, looking backward I can readily understand why Mr. Denman wanted to build wood ships, and why General Goethals insisted upon steel construction; at least, I can satisfy myself as to the reasons for their respective positions.

An enormous burden of responsibility rested upon the chairman of the Shipping Board and his fellow commissioners. The United States was entering as an active participant in a great war, the outcome of which no man could foretell, and whose field of operations lay three thousand miles away across an ocean infested with submarines bent upon the destruction of all Allied shipping. The Allies were beginning to see the end of their resources in men, materials, and money. Only America could turn the tide of victory in favor of the enemies of Germany, and America could do so only by transporting her men and materials across the sea; and America lacked the transportation facilities. Even though it were possible, by the repair of the German interned liners and the use of English bottoms to transport our troops to the fields of France, it would have been worse than criminal to do so without first having made provision to keep them supplied with rations and munitions and the hundreds of thousands of tons of equipment of every character necessary to make their presence in the war effective.

America did not have the necessary ships. Moreover, and still worse, it did not have the yards in which the ships could be constructed. The limited number of shipyards of the country had all their ways occupied with vessels for the navy, or for private account, either foreign or domestic. Despatch was needed, and the building of a large number of wood ships suggested a remedy for the situation. The yards could be speedily and easily built, and it was thought possible to draw the necessary supply of ship labor from the building trades and industries.

It was not contended by any responsible authority that wood ships would prove commercially advantageous, that they would be formidable competitors with the ships of maritime powers in time of peace; but they were regarded, at least as far as the subsequent development of the wood ship program was concerned, as mere war emergency ships. It was supposed that their construction would be comparatively cheap and their operation reasonably economical. Their size, while limiting their cargo-carrying capacity, would, if they should go into the trans-Atlantic service, afford a smaller target for the submarine's torpedo; and if sunk the loss would be smaller, both as to the cost of the ship and its freight, than if a steel vessel of double the tonnage were to go down as the victim of submarine warfare. Again, it was intended that the wood vessel should, in the main, be employed in the safe zones, where voyages were shorter than across the Atlantic and back, and that they should be substituted for the steel tonnage that would be taken out of the coastwise and the West Indies trades, and even out of the Great Lakes, and placed in the war service.

These are some of the considerations that may have prompted the wood ship policy of Mr. Denman.

On the other hand, all the arguments for steel vessels that are to-day patent to every man who has any knowledge of ships — their durability, their greater carrying capacity, as well as the impracticability of the design of a 3,500-ton wood ship which was contemplated — were arrayed by General Goethals, as the general manager of the Fleet Corporation, against the building of wood vessels.

Yet, despite his convictions, General Goethals yielded to the policy of Mr. Denman and the board with respect to the building of wood ships; and the records show that he personally negotiated with contractors for the building of wood vessels, and that a large number, if not an actual majority, of the contracts for the building of vessels of this character were approved by General Goethals himself. It is also true that by far the major portion of the contracts for steel construction were executed after General Goethals had tendered his resignation as general manager of the Fleet Corporation and left its employ, although in numerous instances he had started the negotiations, even though many were not advanced beyond the initial steps.

In the light of these facts, it cannot be said that the question of building wood ships was the actual cause of the retirement of Mr. Denman and General Goethals from ship-building activities, though it may have contributed to the final outcome.

As the Fleet Corporation was constituted, it was intended to be only the construction agency of the Shipping Board, whose affairs were to be managed by a board of trustees composed of seven members, of whom five were the five members of the Shipping Board. Its by-laws provided for a president, a vice-president, a treasurer, a general manager, and such other officers as the trustees might determine. They further provided that the general manager should have the general oversight and management of the business and the affairs of the corporation, and should have the power to employ and discharge all clerks, employees, and agents, determine their salaries, and prescribe and define their duties. In other words, the titular head of the corporation, namely the president, who was also the chairman of the Shipping Board, was assigned merely nominal powers; and the general manager, who is usually an appointed officer in any corporation, was given full executive control and responsibility, yet lacked the power to complete contracts — a most important function and a necessary one for speedy prosecution of the work, especially in the early days of stress and pressure for ships.

Under such a system of divided responsibility, it was out of the question to expect either efficiency or cooperation on the part of those between whom responsibility was divided — the more so as there were vital issues upon which they were not in accord. General Goethals was charged with proper management of the corporation, and the country expected him to build ships; yet, as general manager, he could not complete the execution of a contract. On the other hand, the chairman of the Shipping Board, the head of the parent organization, had no means of knowing how the general manager of the corporation of which he was president was functioning, and there was no obligation imposed upon the general manager to acquaint either him or the Shipping Board with what he was doing. Yet the duty devolved upon the chairman of the Shipping Board, as president of the Fleet Corporation, to execute contracts in the making of which he had no part, and of the contents of which it was not required of the general manager to advise him.

The natural result of such a condition of affairs, taken in connection with their well known differences of opinion, was that there should be a lack of harmony and of coöperation between the chairman of the Shipping Board and the general manager of the Fleet Corporation. The outcome was the resignation of each.

It was not until several weeks after I had been chairman of the Shipping Board that this incongruity in the organization was remedied by a revision of the by-laws, so that power was concentrated in the president of the corporation, with the authority to delegate it, and the general manager was made an appointive instead of an elective officer. The change was made, however, because it was fundamentally sound, and not because of any friction or disagreement or appearance of discord between Rear-Admiral Washington Lee Capps, the then general manager of the Fleet Corporation, and myself. Our relationship was at all times most cordial, and our ideas upon all essentials were in full accord. It was a source of keen regret to me that his ill health, which was no doubt largely produced by his arduous and confining duties through double working hours each day, forced him to relinquish the post that he filled with the highest degree of technical skill and ability.

CHAPTER III

PREPARING FOR SHIP CONSTRUCTION UNDER WAR CONDITIONS

AS has already been pointed out, the action of the United States in taking up arms against Germany entirely changed the purposes of the Shipping Board. It made necessary the development of our fleet along military lines rather than along commercial lines. From a body originally intended to regulate ocean transportation as far as our own ships were concerned, in somewhat the same manner that transportation is regulated and controlled between the States by the Interstate Commerce Commission, and to aid in the development of a merchant marine, the Shipping Board was transformed overnight, as it were, into an agency, first for the acquisition of vessels, and second for their operation. Immediately, from an instrumentality of peace it became an instrumentality of war. In the condition of affairs as they existed at that time, it is doubtful if anyone actually visualized, or indeed could have visualized, the tremendous scope of its future activities and functions, the necessary extent of its ramifications, and the lengths to which it was soon compelled to go in order to accomplish the requirements that were placed upon it, and that steadily increased, day by day and hour by hour, as our participation in the Great War developed.

Other departments of the government called upon by reason of war for similar tasks of the first magnitude, at least had the foundations laid for their work. The navy, for instance, was ready. It needed but the command to move, and when the word was given it functioned with clocklike precision; and its accomplishments and the manner in which its movements were directed will ever remain the pride and glory of every true American.

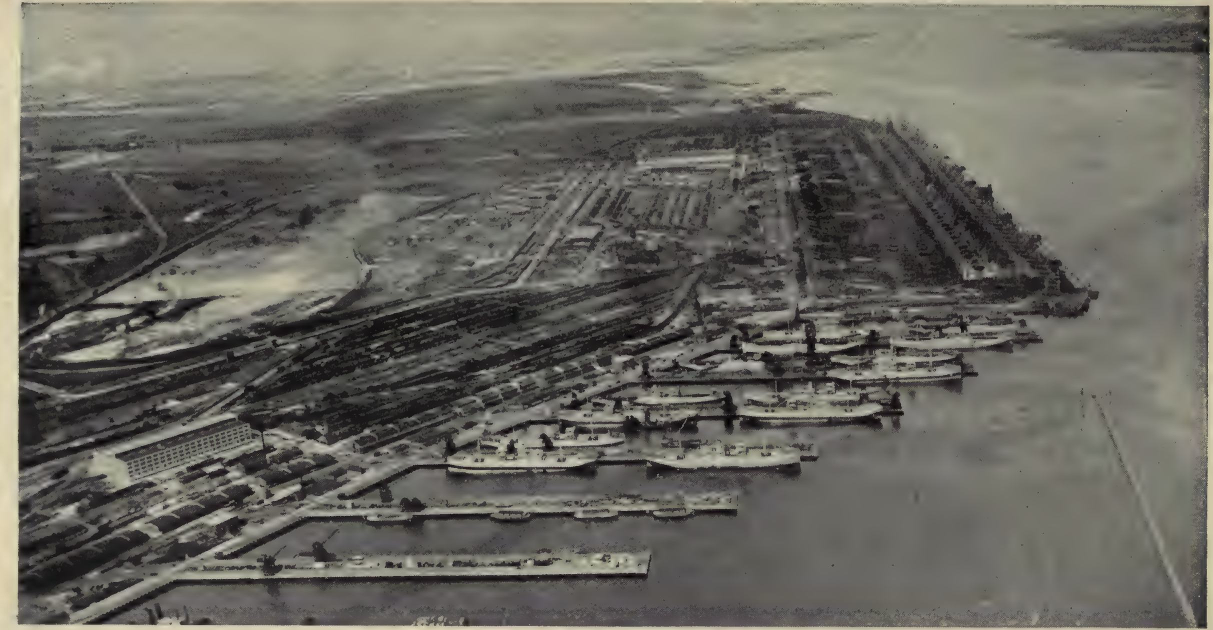
The War Department had existed since the foundation of the government, and, while its army was small, it nevertheless constituted the nucleus of that splendid array of military force which ultimately was to stay the progress of the enemy, and turn his hordes into disastrous defeat and surrender. Our army at least had trained officers and men who, in a space of time almost incredible — in fact, unbelievable to the minds of the military critics of the world — made unconquerable soldiers of millions of their fellow countrymen, and equipped them with the weapons of successful warfare.

Quite different was the situation with respect to the Shipping Board. It had no nucleus, no foundation upon which to build, and it had no organization. It had been too newly created even to have a suitable office abode from which to direct affairs that were to be its beginning. Aside from the vessels of the navy and a few obsolete transports, the United States government owned no ships. Neither did it, at the time of entering the war, have the power to avail itself of the few that were owned by American citizens.

When the United States Emergency Fleet Corporation was formed, eleven days after our declaration of war, it began business in three small rented rooms and with a force of six clerks. At the peak of its activities, or within a period of one and one half years, its home office and field forces numbered 7,849 individuals, apart from those who were employed by the Shipping Board proper. Within a little more than a year, it occupied, in the city of Washington alone, twenty-one buildings, ranging all the way from a transformed livery stable to the best equipped office structure in the national capital, and including commandeered dwellings, a five and ten cent store, club-houses, and similar buildings.

Until the Shipping Board and the Fleet Corporation could be placed upon a war basis, the work of the latter body was necessarily confined to organizing, and to designing and contracting. But contracting did not mean merely the placing of orders for the building of ships. Had that alone been necessary, the task before the corporation would have been greatly lessened. It meant, first, the construction of shipyards in which to build the ships. Even with unstinted funds at its command, with the need of ships above everything else apparent to the citizens as well as to the government and the directing heads of the war, and with the spirit of the people supporting the production of ships to meet the demand, there did not exist, at the time we entered the war, a single place in the United States where those charged with the responsibility of providing them could go and say, "Build us a thousand ships" (or "one hundred ships" or even "one ship"), and have the order filled.

Although there were a limited number of old established, well equipped, and well managed shipyards on the Atlantic, on the Pacific, and on the Great Lakes, there was not one of them with a vacant way suited for the building of an ocean-going steamer such as the re-



Bird's-Eye View of Hog Island Shipyard

On Delaware River at Philadelphia. Wet basin and piers in the foreground.

quirements of war exacted. Nor was there such a vacant way until after the armistice was signed.

On April 6, 1917, there were in the United States 37 steel-ship yards with 162 shipways, and 24 wood-ship yards with 72 shipways, capable of constructing ships of 3,500 tons dead weight or over, a total of 234 ways. At the time of the signing of the armistice there were 223 yards, with a total of 1,099 ways, more than three times the number of shipways in the rest of the world, of which approximately 40 per cent. were for the building of steel ships, and the remainder for wood and concrete vessels, tugs, and barges. To these yards 520 contracts were let, and the total building program at its maximum period called for the construction of 3,115 vessels of 17,276,318 dead-weight tons. This total included commandeered ships, as well as those for which the corporation made prime contract.

As has been stated, every one of the 234 ways in existence at the time of our declaration of war was occupied by a vessel under construction. When the major development of our naval building program began, under the direction of Secretary Daniels, two years before, the Navy Department in letting its contracts had required of all the larger steel yards, as a condition precedent to its awards for construction, that a certain portion of each plant be devoted exclusively to the building of vessels of war. As a result of this policy, the Shipping Board at its outset discovered that approximately 70 per cent. of the total building capacity of all steel-ship yards was occupied by vessels building for the navy. On the remaining ways ships were in the course of construction for private clients, some for American citizens, but the majority for foreign interests.

England, always realizing that her very life depended upon the maintenance of her cargo vessels upon the ocean, and already having a keen realization, in the sinking of the *Lusitania,* of what a policy of unrestricted submarine warfare, even then hinted at, would mean to her, had with commendable foresight placed orders for a million dead-weight tons of ships in the yards of the United States, after having reached the limit of her own building ability. Although neutral, Norway too had been made a victim of the German submarine, which was no respecter of flags or international rights upon the high seas, and, with a prudence characteristic of their race, the shipowners of that country had made large contracts in America for the building of ships.

Two considerations undoubtedly moved the Norwegians to come here and make purchases. One was that, being a strong maritime nation, they readily saw the possibility and opportunities of operating a neutral fleet during the war; and, with ships in unusual demand when the strife should end, there lay before them the advantages that the possession of a large number of ships would afford in the carrying trade of the world. Again, because of England's need of all available tonnage, Norway had entered into agreement with England to dispose of her vessels to the English under favorable conditions, and for the further assurance of being provisioned. Therefore it was that only a few months before America entered the war, and while it was quite apparent that we would within a short time be forced into the struggle, Norwegian shipowners hurried to the United States and preëmpted all of the then available building capacity of the country.

France and Italy and a few of the lesser nations also had smaller orders in our yards, so that the total, including those under construction for domestic account, aggregated 431 vessels of 3,056,000 tons dead-weight capacity.

Immediately, therefore, upon the reorganization of the Shipping Board — following the retirement of Mr. Denman and General Goethals, and my own appointment by the President to the Shipping Board on July 27, 1917, and subsequent election as chairman and as president of the Emergency Fleet Corporation, with Admiral Capps as general manager — an order was issued as of August 3, 1917, commandeering all hulls and ship materials in American shipyards intended for the building of vessels of 2,500 tons dead weight or more. The order applied to foreign as well as domestic contracts.

The authority for such an order had been conferred by Congress upon the President, and by him delegated to the Fleet Corporation. It was an action justified by the exigencies of war, and by war alone. While it was a source of much disappointment to shipowners, and aroused some protest, especially from the foreigners, it did not provoke from them violent opposition; for they doubtless realized when placing orders for ships, with the probability of war hanging over the nation, that the government in such an extremity must take advantage of so necessary a means of successfully conducting it. As for the foreign governments, especially those with which we were associated in the war, the action of the administration in commandeering ships that otherwise would have gone under their flags greatly expedited their construction and made it possible the sooner to place them in the service, which was ultimately to bring success to the cause for which each was fighting. In the accomplishment of the desired result, namely the winning of the war, it mattered not whether they were classed as British, French, Italian, Norwegian, or American ships. Their more rapid completion, however, was a matter of the utmost importance. That was what was done by taking over their construction by the Emergency Fleet Corporation. Moreover, the vessels were needed by the United States itself, if this country was to become an effective force in the war.

At the time of commandeering these hulls and ship materials, there was some suggestion that we should obligate ourselves to return the completed vessels, after the war emergency should have passed, to the original owners. Such a policy would have been wholly unwarranted. Even if it had been adopted, which was not done, it is extremely doubtful if many of the former owners would have availed themselves of it, for the reason that, in the completion of these ships under wartime conditions, their costs mounted to such figures as to make them unattractive; and surely our government would not have been justified in assuming the increased cost and in addition surrendering the ships. Accordingly, settlements were made upon a money basis.

With the English very little difficulty was experienced. The negotiations with the Norwegians, who made the most stubborn resistance to our action, were more protracted, and fraught with greater obstacles. It was not until two years after the commandeering order that a final and satisfactory settlement was made with the Norwegian owners. American claims, in some instances, were settled by re-transfer of ships, repayment of our investment in them, and a charter securing the use of the ships to the United States during the war.

In executing its commandeering order, we not only secured to the United States a vast tonnage that otherwise would largely have gone to foreign flags, and expedited construction by simplifying designs, but we prevented interference by these ships with others that the corporation proposed to construct. Further, we gained control over the ship-building industry that could not have been acquired except by having direct relations with the ship-builders, and we were, therefore, in a position at all times to allocate materials and equipment between these ships and others, a position made absolutely necessary as our program of construction began to develop.

In some instances the survey of these vessels, made by experts, showed that certain changes were advisable in order to make them better suited for the war services in which they were to be used. While these changes may have rendered the vessels less desirable for commercial purposes, they were regarded as necessary for war purposes. A few commandeered vessels which were nearing completion when taken over by the corporation, and others with which exceptional conditions existed, were reconveyed to their former owners, and a small number were canceled; so that, as the plan was finally worked out, approximately 414 vessels of 2,895,848 tons dead weight, from a total of 431 ships of 3,056,000 tons commandeered, were completed by the corporation and placed in service.

As an evidence of the acceleration, the case of the New York Shipbuilding Company, at Camden, New Jersey, may be cited. Only five ships of 38,424 tons were completed and delivered by that plant in 1917; yet in the first nine months of 1918, with the corporation in full control, thirteen ships of 97,400 tons were completed and delivered.

But the taking over of vessels already under construction, with the purpose of hastening their completion, could constitute only a part of the undertaking necessary to supply the great and growing need for vessels. At best, it could provide less than three million tons of ships; but they afforded a means of relief at an earlier date than would otherwise have been possible. The administration, the Congress, and the country realized that much more tonnage must be produced, yet the facilities were wholly lacking. In consequence, all contracts executed prior to the commandeering order, as well as subsequent ones, contemplated either the building of entire new yards or elaborate extensions to existing plants.

As far as the building of wood ships was concerned, it was almost a lost art, despite the fact that our shipwrights were once the leaders of the world in this respect. Save for a few yards along the Maine coast, where ship-building had become a sort of family tradition, and a limited industry that had been built up chiefly by Norwegians on the Pacific coast, wood-ship building remained little more than the memory of a historical fact. It was believed that the spirit of the builders of the old clipper days would return, and that there would be, under the inspiration of necessity, a revival of the enterprise. In this, however, the hopes of the projectors of the plan were realized only to a limited degree. Under the enthusiasm of the hour, and with a laudable purpose of serving the country as well as making money — for patriotism as well as a desire for profits undoubtedly moved prospective contractors — men undertook the work of building yards for the construction of wood ships.

With the advent of war, building and construction operations in general came almost to a standstill throughout the country, while both employers and employees turned their attention to war industries. This condition of affairs very naturally forced into ship-building men and organizations who found their regular pursuits at least suspended for the war period. They believed that, with plans and specifications and a set of blue-prints, they could build anything an architect might prescribe upon paper. In many instances it was necessary for the Fleet Corporation, either wholly or in part, to finance the construction of these yards, as well as the building of the more important steel yards. Permission was given to allow the first payments upon ship construction to be used toward the building of yards; but, even with this liberal consideration, with the advancing cost of materials and labor, as well as the growing difficulties of obtaining both promptly and in sufficient quantity, yard construction was greatly delayed in the earlier stages of development. These disadvantages led many of the contractors to seek a revision of their contracts, which had originally been executed upon a lump sum basis, and to accept a contract that allowed them a fixed fee for the building of each ship. This method was adopted to a large extent by the wood-ship builders, whose handicaps were much greater, for many causes, than they had anticipated at the inception of their undertakings.

Notwithstanding the troubles encountered in erecting the necessary yards for ship-building, these great industrial plants sprang up with remarkable rapidity, all things considered, along the entire length of our seacoast; and, where there had been only stretches of sandy beach and ocean waves, within a few months, and in some instances within a few weeks after the work had been started, there appeared lines of shipways, literally forests of giant cranes, and all the appurtenances of complete ship-yards.

It had been the exigencies of war that brought them into existence, and the strong financial arm of the government had in a large measure provided the means. Altogether, the Emergency Fleet Corporation, in order to carry out the task of supplying the nation with ships, was required to expend approximately $167,000,000 for ship-yards alone, in some instances entirely financing their construction, and in others merely making advances to permit extensions. It was obliged to organize and provide a force to insure the proper protection of its plants, not only against the elements, but against their destruction or damage by acts of the enemy, whose secret agents were very active in America. Not only was it necessary that the corporation should protect its own investments in these plants, but any material damage to them would have operated to hinder and delay the production of ships. So thoroughly was this work done that losses and damages of the character mentioned were negligible.

With the delivery of the ships came the necessity of having dry-dock and marine railways and repair plants; and with the completion of the yards and the beginning of actual ship construction, these essential adjuncts of ship-building and operation were likewise developed.

Thus it was that, before the war had been brought to a close — in fact, at a time when the decision was uncertain — there was created a potential capacity for ship construction that equaled the aggregate capacity of all the rest of the world. Even Great Britain, which for generations had been the premier ship-building nation of the world, was placed second in the list of producers of water carriers. All of this was accomplished in a little more than a year; and while, with the conclusion of peace, some of the ship-building agencies brought into existence because of the war must pass away, there yet remain enough to enable America to hold first place among the ship-building countries of the world.

In these plants, a majority of them erected under trying and adverse circumstances, within two years after operations had been begun by the Emergency Fleet Corporation, there was turned out in one month twice as much tonnage as had been completed in American yards in any one of the four years immediately preceding the war. Moreover, in doing this there was no interruption to the elaborate naval building program.

CHAPTER IV

PROBLEMS OF LABOR AND MATERIAL SUPPLY

THE building of the second largest merchant fleet of the world was not a trifling undertaking. It would have been a stupendous task had the plant facilities, that is, the shipyards, been in readiness when the undertaking began. It would have been a monumental job had the country been at peace, and the conditions of industry normal. England's great mercantile armada was and is the development of more than two centuries, and during the past fifty years the growth, in keeping with modern progress and invention, has been along the lines of steam propulsion and steel construction. All of that time, although the first steam-driven vessel was the result of American ingenuity, and hulls of iron were first launched in this country, the American merchant marine virtually stood still while our former rival and competitor gained control of the seven seas.

For England this was the natural and logical outgrowth of a geographical condition. England, Scotland, and Wales comprise a comparatively small island, with a population relatively dense when we consider our own vast expanse of unoccupied territory. The chief natural resource of the island is coal. In order to sustain its population, increasing more rapidly than production, under conditions of modern civilization, it is necessary, and always will be necessary, for England to maintain a great overseas trade. Britain, of all the nations of the world, cannot isolate herself or permit herself to become isolated from the remainder of the world.

It was a knowledge of this fact that Germany appreciated, and it was such a condition of isolation that she sought to bring about when ruthless submarine warfare was decreed. All the world knows that Germany thought she could, by destroying the British merchant fleet, starve out the English, and thus win the war before America got into it. England's ability to ward off this blow until aid and succor should come from the United States prevented the catastrophe of Prussian domination.

The German mind was not so dense but that it fully realized that the submarine campaign would force the United States into the long list of enemies of the Central Powers. But other considerations outweighed an appreciation of that fact. Germany's war-lords knew that the United States had only the skeleton of an army, scarcely a garrison command compared with the enormous military forces in the field; they believed that America could not raise, train, and equip a force soon enough to be effective; and they argued that, even if America's man power were mobilized and succeeded in crossing the Atlantic, there were still no American ships to keep them supplied with the necessities of war; and, lastly, they believed that, in the remote event of the ships being built, they would be sunk by the submarine before they could land their cargoes in France.

The difficulties that Germany anticipated with respect to our effort to build ships, which were the key to the whole war situation, were keenly realized in

America when we began the undertaking. The Germans had not in the least underestimated them; they had only underestimated our ability and capacity to overcome them.

The wood ship program was beset with obstacles and handicaps almost from its inception. I had not been long a member of the Shipping Board before I had a forceful realization of its problems, and was able to see that its success would be far short of what its promoters and advocates had seriously and conscientiously expected of it. But it was then nearly five months under way, the Shipping Board was committed to it, contracts had been entered into, commitments had been made, the machinery of production had been set in motion, and it was no time to turn back. Besides, the psychological effect of abruptly eliminating wood ship construction at that time would have been disastrous, with the need for ships so great, and such a large element of our people firmly believing that they would meet the emergency purpose for which they were to be built.

The American public was not then, and is only partially at this time, ship-educated. It did not know ships; it did not understand ships; it did not speak the language of ships; and, with all due respect to the intellectual qualifications of my fellow countrymen, experience has shown me that even now they have a great deal to learn concerning these great vehicles of foreign commerce. To the vast majority of people, and more especially those living remote from the seaboard, a ship was a ship, whether it was made of wood or of steel, whether its propelling power was a turbine or a reciprocating engine, whether its fuel was coal or oil, and classification was an unknown term.

To such the building of a large fleet of wood vessels seemed honestly to offer a remedy for our paucity of vessels. The vast forests were full of timber, and carpenters could erect them. If the submarines sank them, the loss would be comparatively small, and others could easily be built to take their places. That was the argument, and it was sufficient. But I am not one who now desires to say "I told you so." I am willing to accept and do accept my full responsibility for the wood ships. I offer no apologies for them, nor for my part in their construction. If we had had foresight instead of hindsight, we would not have entered upon their construction. Still, they served a purpose, although by no means the full purpose for which they were intended. They carried many tons of valuable cargo at a time when the movement of cargoes was a matter of great public necessity. For commercial purposes in times of peace no one could have justified their building; but, strictly to meet a war emergency, the money expended in their construction was by no means a total loss.

Because the North Atlantic offered opportunities to draw upon a large labor market, including what knowledge of wood ship construction there existed on the east coast, and because the South Atlantic, the Gulf, and the North Pacific presented unlimited quantities of material, the entire Atlantic, Gulf, and North Pacific coast became studded with projected yards for the building of wood ships. Mr. Theodore E. Ferris, one of the foremost naval architects of the country, was selected to provide the plans and designs for the 3,500-ton wood vessel that it had been determined, in the main, to construct. Other designs were submitted, and several of them were followed, especially on the Pacific coast; but the majority of the contracts executed were for the Ferris type of ship.

The producers of Southern pine, in a commendable effort to furnish the necessary material, organized the Southern Pine Emergency Association to provide the timbers. But the summer of 1917 passed, and the autumn arrived, with no perceptible progress made toward producing the much-discussed wood ships; and meanwhile the demand for tonnage and the emergency became augmented.

Then it was that we appointed a committee of three of the most competent and experienced construction engineers in the country — Mr. Charles Piez, Mr. Charles Day, and Mr. Arthur J. Mason — to investigate the wood-ship yards, learn the cause of the trouble, and report to the board. Their investigation, which was quickly made, dealt, not with the practicability or impracticability of the wood ship, but with the construction and production situation as they found it. The chief difficulty at that time was lack of a systematic supply. Often yards were found with deck lumber on hand, but without keel timbers. The whole thing had been so hurriedly begun that orderly and businesslike procedure had been omitted.

The Southern pine producers, who had been confident that they could furnish the required timbers, were called in, and again repeated their assurance that the materials would be promptly forthcoming. Unfortunately, it was impossible for them to fill the orders. If the necessary big timbers existed in the South, they were too inaccessible to be brought out, and in consequence the Atlantic and Gulf coast builders suffered, and naturally complained.

Immediately Mr. Piez was appointed general manager of the Emergency Fleet Corporation to succeed Admiral Capps, who had resigned because of ill health. In that capacity he took charge of the construction program. Daniel H. Cox, a recognized leader among American naval architects, became chief of the Division of Steel Construction, while Rear-Admiral F. T. Bowles, who had made an enviable reputation as a constructor in the navy, was called from his retirement to private life, to have general supervision over the construction of the so-called " fabricated " ships.

James O. Heyworth, who had had large experience in handling big construction problems, was appointed as the manager of the Wood Ship Division, and to him was due the measure of success that was attained in the woodship building program. Without any responsibility for the type of ship, his was a matter of production simply, and in this respect he accomplished all that could reasonably have been expected with what proved to be from the beginning an unfortunate undertaking. Oregon fir was brought on from the West to the Eastern yards to meet the demand for big timbers, and structural changes made necessary in the original designs were worked out so that conditions were materially improved; and had the war been prolonged the wood ships would have given a better account of themselves than they did.

As the construction program both of wood and steel developed, it became apparent that the two main problems confronting the corporation consisted in obtaining an adequate supply of labor and an adequate supply of material, delivered in proper sequence. In the meantime, the demand for all war supplies was making heavy inroads not only upon the available stocks, but on the producing capacity of the industries of the country as well, and the Emergency Fleet Corporation found itself compelled to assume increasing responsibility for furnishing all new yards, and many of the old ones, with the necessary raw and finished materials. In the construction of wood vessels, only a few yards, for instance, accepted contracts for the delivery of complete ships. The remaining yards undertook the construction of wood hulls only. For these the Fleet Corporation had to provide not only the lumber and fastenings, but the chains, anchors, and other hull accessories in addition. The corporation had to furnish also the boilers, piping, engines, propelling machinery, deck machinery, and all other parts of the equipment, and had to construct separate plants at which this machinery and equipment could be installed on the hulls delivered by the hull contractors.

Obtaining the desired supply of material in the order in which it should be required by the yards, therefore, presented a serious problem. The Fleet Corporation not only found itself competing with every private industry for materials, but more particularly with every other war activity, until the War Industries Board took control of the situation and began the issuance of priorities.

Beginning with the simple act of purchasing, the failure to make deliveries called very promptly for the organization of a production and expediting department; and the necessity of bringing the finished materials to the completed hull presented a most interesting and difficult task in allocation, despatching, and transportation. The Fleet Corporation had accepted responsibility in full for supplying the raw materials, the finished materials, and the machinery for the wood ship program, then amounting to $450,000,000, and in addition it was charged with the burden of procuring all of the steel and a large part of the machinery for a steel ship program at least six times that size.

Time is a most essential factor in the development of any organization, and it is particularly true of those huge organizations that grew out of the necessities of the war. It took time to see and to grasp the real needs, time to develop the scheme of organization, time to select and test the men to manage affairs, and time to promote the proper team spirit, the spirit of discipline and submission to the central controlling authority. Every one of the many divisions of the Fleet Corporation presented problems exceeding in number and magnitude the problems presented by an industrial or commercial enterprise doing a business of many millions of dollars a year, and every division required an organization of which the organization of the corporation was but the pattern and model.

The Fleet Corporation not only had to expand the capacity of many industries furnishing material for vessels, but it also had to create wholly new industries for the manufacture of certain parts. This could not have been done had the placing of orders been allowed to remain in the hands of the shipyards. Neither could close coöperation with the War Industries Board have been maintained had the Fleet Corporation not insisted on gradually extending its control of all purchases in all the shipyards of the country.

In the midst of these activities came the great railroad congestion, which obliged the government to take over and operate the inter-State lines of rail communication, followed by the severest winter that the country had experienced in a generation. Against the freight embargo even our well organized transportation division could not contend. Inasmuch as ship-building is essentially an out-of-door industry, the weather conditions of the winter of 1917–18 operated as a further hindrance. These two factors in the situation, the one as unavoidable as the other, served to cause greater interference with and delay in the production of ships than all other causes combined.

Concurrently came the labor problem. When our ship-building program began, there were all told in the country, according to the best estimates of the Census Bureau, approximately 44,000 men engaged in the shipbuilding industry. These included all classes of labor upon all types of ships, from the gigantic battleship down to the humble pleasure sailing-boat and rowboat, and from skilled artisans down to common labor. At the time of the signing of the armistice, there were employed in the various shipyards doing work for the Emergency Fleet Corporation 381,000 persons, and in addition an estimated number of 200,000 engaged in allied industries, constructing material to go into ships.

Only heroic methods could meet the situation presented when the shipyards began to need workmen. Other war activities, especially the making of munitions, made heavy demand upon the already depleted labor market. These activities often presented more alluring inducements to labor than ship-building. The work was generally under more advantageous conditions, and the wages were higher in many instances than was the practice in shipyards. An elaborate nation-wide campaign was inaugurated to induce men to enter shipyard employment. Under the title of Shipyard Volunteers, men were invited to enroll themselves for such service. No obligation other than a moral one was placed upon those who thus volunteered their services, but they were guaranteed the prevailing scale of wages in their respective trades.

Patriotic newspapers and magazines took up our call for workers and gave it the widest publicity. The Four-Minute Men — whose great service has perhaps not been fully appreciated in selling the war to the American people — responded to our appeal, and for one week devoted their daily talks exclusively to ships and shipbuilding. The State Councils of Defense, which were admirably organized for such a purpose, set their forces at work with untiring energy, and, together with the Department of Labor, established in every labor center in the United States enrolment stations where men might signify their willingness to take up shipyard labor. The urgent necessity for the building of ships was shown in type, in picture, and by the spoken word, and it was made plain to the workers of the country that the man who helped to build a ship was performing a service comparable with the service of the soldier in the trench.

The effect was electrical. Within a period of two weeks more than 280,000 men, representing upward of eighty different trades and avocations, each adaptable to the ship-building industry, had enrolled in the Shipyard Volunteers by signing and sending to the chairman of the Shipping Board a pledge to enter shipyard employment when they should be called upon to do so. The draft act threatened to make serious inroads upon the supply of labor for shipyards. In the beginning of the operation of this law, men eligible for military service were taken directly from the shipyards, the same as from other industries. An arrangement was made with the Provost Marshal, however, whereby those who had been employed in shipyards at the time they were inducted into the army, and who had not already gone overseas, might, upon proper application by their employers, be furloughed to return to shipyard labor. At the same time, an order was issued giving deferred classification to men actually employed in shipyards. In this manner some 65,000 men of military age and qualification were retained in the shipyards to build ships. These men were not shirkers. Their work was as essential to winning the war as was that of the men in uniform. Without their efforts the success of our arms would not have been possible.

During the entire building program, up to the signing of the armistice, a continuous campaign was waged, under systematic and able direction, to inspire the shipyard workers to put forth their utmost endeavors to produce ships. Midday and evening meetings were held, at which public speakers, many of them returned soldiers, told of what was transpiring on the other side, and impressed upon the workers the great need of ships. Moving pictures depicted scenes of the conflict, and elaborate bulletins and posters drawn by the best artists of the country, who contributed their services, all aimed to bring forcibly home to the riveter, the calker, the shipwright, and every individual whose labor contributed in any way toward the making of a ship, the importance of the job he had in hand and the reliance that was placed upon him to speed up production.

It is to the everlasting honor of American labor that it performed its duty well and faithfully, and that it did so is in a large measure due to strong influence exerted upon the workers by Mr. Samuel Gompers and the other prominent leaders of labor who at all times sought to coöperate with the officials of the Shipping Board and the Emergency Fleet Corporation. It was also a source of great satisfaction to those directing these two organizations that strikes and labor troubles were few and not of damaging character. Such as occurred were adjusted without serious difficulty.

There were those who, in the fever of war excitement, at times talked of conscripting labor. Such suggestions I vigorously opposed, believing that the American laboring man understood what was expected of him and could be relied upon to respond to the needs of his country in its time of stress. That belief was amply justified by the manner in which the employees of the shipyards performed their part of the task necessary to bring victory to American arms.

It is true that liberal advances in wages to shipyard workers were granted from time to time. They were made, however, after careful and painstaking investigations by the so-called Macy Board, representing the Shipping Board, labor, and the public, and were only in keeping with the rapidly increasing cost of living. It became as necessary for the Fleet Corporation to control the labor supply as it was to control the material supply, to establish standard wages and compel as far as possible shipyard managements to adhere to these standards, and to cease their rivalry in bidding against one another for labor. Such practices were common before the Industrial Service Branch of the Fleet Corporation was organized, and their effect was an enormous turnover in the labor supply, with all of its destructive features and delay in production.

Generally, our contracts obliged the Fleet Corporation to assume the burden of increased labor and material costs when such increases were approved by it. Furnishing, as the corporation did, the bulk of materials, it in consequence assumed the added cost, as of course it did in approving the advances in wages recommended by the Macy Board. In the shipyards alone labor increases over the cost of labor in pre-war years added no less than $300,000,000 to the cost of ships in the first year of government ship-building, and it is not improbable that the added cost was even greater than that amount in the second year. This is one of the reasons why the average cost of our ships, constructed as they were under war conditions, was approximately two and one half times what the same ships would have cost in American yards prior to the outbreak of the war, had we had the facilities and the inclination to build them.

It must be remembered that this great army of newly recruited ship-builders were, for the most part, untrained in the construction of vessels. The sources of labor supply that were tapped, when the need for men in the yards came, furnished skilled artisans, but in most instances they had never seen a shipyard, or at least had never been inside one. They were bridge-builders, structural steel workers, machinists, mechanics, and others whose regular and accustomed pursuits had been interrupted by the war. They were trained men in their respective crafts, but they had to adapt their skill to the arts and requirements of ship-building, which demands a kind of technique not found in any other industry, but peculiar to itself.

Such men had to undergo courses of training. For this purpose, practical industrial schools were established in many of the yards, and applicants were educated to the trade of ship-building in its various branches. More than that, what might be called normal schools were organized, where mechanics of high grade were instructed so that they might themselves become instructors of others in the various yards. Thus were produced the great numbers of supervisors and inspectors and foremen necessary to direct the work of subordinates.

But the problem of labor supply did not by any means end when the workmen were entered upon shipyard payrolls, even after having been trained for the labor they were to perform. Where shipyards were established at or near great centers of population which afforded facilities for rail transportation and the supply of materials, there arose the problem of housing the shipyard workers who were drawn to these plants, many of them coming from interior points of the country. Normal building operations had virtually ceased; there was an abnormal influx of people to the cities to engage in war activities; and especially were the communities where munitions were being manufactured soon overcrowded. In the cases of plants established remote from centers of population, the same problem in a little different form was presented. In such instances there were no housing accommodations, or such as existed were inadequate.

The Fleet Corporation, therefore, found itself confronted with the question of providing living quarters for the men who were expected to build ships. Fortunately, this situation had been anticipated far enough in advance of the need of men in the yards to make some preparation to meet it.

Congress was asked for, and made, an appropriation of $50,000,000, and later granted an additional $25,000,000, with which to erect buildings to house the workers. In some instances hotels were constructed, in others barracks; but in the vicinity of many yards entire new communities, consisting of hundreds of houses, were erected. Along with the building of these villages, it was necessary to provide the ordinary comforts and conveniences of modern life, such as streets, graded and in some instances paved, sewers, schools, fire-protection apparatus, hospitals, recreation places, stores and shops, as well as electric lighting and police.

In order to take advantage of housing facilities at a distance from some of the plants, the Fleet Corporation was obliged to make provision for extending transportation lines and to supply power and rolling stock as well. These were some of the difficult problems that the Fleet Corporation was obliged to meet before it could enter upon the production of ships in large numbers, and they illustrate in some degree what has previously been alluded to in regard to the ramifications and broad scope of the work of the Shipping Board. They are cited here to convey an idea of the conditions and influences under which the ships of our new merchant marine were constructed, to the end that, having been acquired, their possession may be the better appreciated and their proper employment redound to the best interests of the country.

CHAPTER V

THE FABRICATED SHIP

ALTHOUGH the building of our new merchant marine was started under war conditions, and with the attendant difficulties and obstacles that have been in part briefly described, there was at least one phase of its construction so novel, so typically American in its origin and in its execution, that it may be said fairly to present the glamour of industrial romance.

Time out of mind, ships have been *built*. They had been built in the same sense and along the same general principles that a skyscraper is built, or a tunnel, or a railroad bridge, or any other great construction work. It remained for American ingenuity to devise and carry into successful operation a plan for *manufacturing* ships — manufacturing them in the same sense that any other article of commerce is manufactured. The building of ships according to the old method, wherein everything that goes into the construction of the hull is made within the plant, and there molded and fashioned to meet the requirements of each particular vessel, was the only process that the builders knew. Ships had always been built that way, and doubtless the same system would have been followed indefinitely had not the exigencies of war forced the invention of something different, something that was such a radical departure from that which had been done heretofore that the older minds in the business viewed it with suspicion and distrust.

This is not to say that the old method of *building* ships will not be continued, both in our own yards and those abroad, but rather that the emergency of war brought out a new way of producing ships, and these *manufactured* ships constitute both an interesting and an important part of our new fleet.

What is generally understood as the "fabricated" ship is in reality, and properly speaking, an "assembled" ship. Its parts, instead of being fabricated at the shipyard plant, are fabricated at a hundred different plants, many miles from the shipway, and are put together at the assembling shipyard. They are marked, lettered, and numbered as were the materials that entered into the construction of Solomon's Temple, and ready to be set, each in its correct place in the ship on the way, when received at the yards.

The idea of the fabricated ship originated with Mr. Henry R. Sutphen, a naval architect and engineer of wide experience, and vice-president of the Submarine Boat Corporation.

In the fall of 1916 that corporation had completed for the British Admiralty 550 submarine-chasers built of wood. The hull material was fabricated at the concern's Bayonne, New Jersey, shops, transported to Montreal and to Quebec, Canada, and in the assembling yards at these places put together and the chasers launched. The plan was so successful, and the chasers so effective in hunting down the German submarines, that others were similarly made for France and for Italy, as well as repeat orders for Great Britain. The production of these trim little submarine-chasers was the first large boat manufacturing project ever attempted, and the contract was completed ahead of scheduled time. It constituted the model experiment for the much greater undertaking of turning out cargo vessels in time of war upon the principle of multitude production.

The first suggestion with respect to fabricated cargo vessels embodied the idea of wood construction; but the experience of the Submarine Corporation in its contract for the chasers fortunately caused that idea to be abandoned. The difficulties encountered in obtaining materials and competent shipwrights forced the conclusion that a wood fabricated ship could not be successfully produced in quantity. While wood could be fabricated into boat material, nevertheless the material, unlike steel, would not stay put, due to shrinkage, checking, and rot.

Further investigation developed the fact that the output of ship steel for months in the future had already been allocated to the established shipyards for merchant work then under way (the Shipping Board's commandeering order not having been issued at that time) and for naval requirements. Therefore Mr. Sutphen asked of the Emergency Fleet Corporation, shortly after its formation, that his company be permitted to submit a plan for manufacturing steel ships, using the ordinary commercial structural steel, the same as is utilized in the building of skyscrapers, bridges, and tanks.

General Goethals, the then general manager of the Fleet Corporation, was skeptical when the proposal was originally presented to him; but a study of the plan that Mr. Sutphen submitted soon convinced him of its practicability, and the Submarine Corporation was directed to proceed with the further development of its proposal. The bridge-builders, whose activities had largely been suspended because of the war, agreed that they could fabricate the steel necessary for the type of ship that had been outlined, and the best advice of the naval architects concurred in the opinion that the tensile strength of commercial steel would meet the requirements for ships up to a certain displacement.

The rules of Lloyd's and of the American Bureau of Shipping did not provide any rating for ships manufactured of commercial steel, and when the subject was presented to them for their consideration and study, they arranged to give a rating that would place these ships on a par with those built of regular ship steel.

On account of using unclassified steel, it was suggested early in the undertaking that the fabricated ships be limited in size to 3,500 tons dead weight, the same as the wood ships then in contemplation. In the detailed development of design and construction, however, it was found possible to increase the dead-weight capacity to 5,000 tons and still retain standardization in design and material. There were also other reasons for determining upon this size of vessel, and these are responsible for the fact that there are now more than one hundred of them in our new merchant marine.

An analysis of pre-war shipping disclosed the fact that the average commercial cargo-carrier ranged from 4,000 to 5,000 tons dead weight with a full load speed of nine knots. It was further believed that a 5,000-ton craft, able to make ten and one half knots an hour, would be preferable for war purposes, and would undoubtedly prove a much more desirable type for service in commercial trade after the war. Furthermore, and of no less importance, investigation showed that the unit features of a 5,000-ton ship, fabricated at more or less distant outlying plants, would utilize freight-car capacities to their fullest and most economical extent and still carry out the plan of having as many rivets as possible driven at the fabricating shops.

A total of 427,000 rivets was required to be driven for one of the hulls of such vessels as were manufactured at the submarine plant, and of this total 100,000 were driven at the fabricating shops, where the work could be done on a much more economical basis than at the shipyard. For illustration, the smokestacks were so designed that their maximum diameter came within the width of an ordinary gondola car, thus permitting the stacks to be shipped completely assembled.

The floors and intercostals were assembled in groups of three, which allowed the ordinary 36-foot flat-car to carry sets of floors, and when loaded to keep within the railway clearance. It was recognized at the start that the railroads would be heavily burdened, and, as a very wide region would have to be drawn upon to furnish materials, it was absolutely essential that car space should be utilized to the best advantage, so that the fewest possible carriers would be needed to maintain a steady flow of supplies to the assembly yard, which was established on Newark Bay.

The problem was first to use commercial structural shapes and plates that could be had in large quantities, and design the ships so that these could be assembled with a minimum of alteration through bending; and next that the plans should be so developed that the bridge-builder and the structural shops should have no difficulty in reading the drawings and in adapting their experience and equipment to the fabrication of the parts for ship construction. The naval architect had to speak and draw in terms familiar to the great army of structural steel workers, which required some radical modifications in the matter of classification details, and imposed rather pronounced departures from the ordinary ship-shaped models, in order that the materials at hand might be employed in the most efficient manner for maximum production and accuracy of fit.

There was no plant available at which to accomplish the tremendous task of assembling ships in quantity. Neither was there a surplus of skilled ship-builders on which we could draw to work up an efficient organization. The only hope lay, therefore, in the employment of commercial steel erectors, and in locating the plant in a center of population where there would be available a large supply of labor skilled in other lines of industry, which it would be absolutely essential to draw upon. Newark, with a population of upward of eight millions within a radius of twenty-five miles, was selected, and a contract was entered into for the building of a 28-shipway yard and for the manufacturing of 150 fabricated ships of 5,000 tons dead-weight capacity. The contract was signed on September 14, 1917, and work was immediately begun upon land leased from the city of Newark, the land being at that time nothing but marshy meadows.

Notwithstanding the difficulties of the extremely severe winter that followed, the shortage of men and materials, as well as the railroad embargo, the yard was completed, and the first ship, the *Agawam* (meaning "damp meadows") was launched on May 30 following — a period of eight and one half months from the beginning of yard construction to actual ship-launching. This accomplishment I believe to be without a parallel in the world's history of ship construction, and it must have been a warning signal to the German militarists of what might be expected of America when the nation got into the full swing of the war.

The *Agawam,* with reduction gear turbines, has given a good account of herself from the time of her maiden voyage, and to-day more than half a million tons of this type of fabricated ships are sailing the seven seas, constituting an important part of our new merchant marine. Not only have they shown an economy in operation second to none, but they have manifested a staunchness that has enabled them frequently to forge steadily ahead against driving winds and angry seas that might force even larger craft to turn and run before the storm.

The principal dimensions and general characteristics of these ships are as follows:

Length between perpendiculars	324 feet
Length over all, about	335 feet 6 inches
Beam, molded	46 feet
Depth at side to upper deck	28 feet 6 inches
Load draught, about	23 feet
Number of propellers	1
Propelling engine, turbines of	1,500 horsepower
Speed	10½ knots an hour
Dead-weight capacity	5,350 tons

Since quantity production was the key-note in building these ships, it was essential that the main propelling machinery should be of types capable of being manufactured in quantity. Therefore water-tube boilers were chosen, with reduction gear turbines. The boilers in these vessels are of the Babcock & Wilcox make, with a total heating surface of 5,800 square feet, operated with coal or oil under natural draft. The propelling machinery consists of a geared Westinghouse turbine capable of developing 1,500 shaft horsepower, turning a fifteen-foot four-blade screw at 90 revolutions a minute. The turbine is connected to the propeller-shaft by a helical double reduction gear with a ratio of speed reduction of 40 to 1. The steam consumption of the turbine, when operating at full speed, does not exceed 12.5 pounds per shaft horsepower.

The storage capacity for fuel oil is 660 tons, carried in the double bottom, which is sufficient to operate the vessel 7,000 miles, and with deep tank carrying oil the radius may be increased to 13,000 miles. The ships are fully equipped with all the essential auxiliaries and deck machinery, and with comfortable quarters for a crew of sixty men.

Nowhere in ship construction have more important changes been made than in the condition under which sailors and firemen, messmen and deck-boys — the rank and file on shipboard — live and follow their calling on American ships. This applies not only to the fabricated ships, but to all vessels built by the Emergency Fleet Corporation.

Shower-baths, pipe berths in which vermin can find no hiding-place, large ports giving good ventilation and light, electric lighting, modern plumbing, steam heat, and washing accommodations, are some of the features of the forecastle on a modern freighter that would seem like the trappings of a dream to the sailors of the earlier days of our merchant marine, or even to those who manned cargo steamers up to the beginning of the war.

When the Fleet Corporation began building its great mercantile armada, the men who did the designing took deep thought of the human element on shipboard, and contrived to make it count to the utmost. They saw, with a broad vision, that a seaman, like any other workman, must have proper living conditions when engaged in his occupation if he is to do his best work. They planned accordingly. The forecastles they built were far ahead of any that had ever before been placed in merchant-ships.

Nor was this all. They were better equipped, for the Shipping Board saw to it that proper bedding was supplied. This was a marked step in advance, for the sailor of other times was obliged to provide his own bedding. It consisted usually of a sack of shavings, the cheapest of cheap excelsior mattresses, or even a bag of hay — the proverbial "donkey's breakfast" of sea-going men. To-day the merchant-ship built by the Emergency Fleet Corporation carries a full supply of excellent bedding, including a mattress, which with wide-mesh springs makes a most comfortable bed, blankets, pillow, and coverlet (bed-spread). There is a slip-over for the pillow which can easily be removed for washing. With bedding of this kind, if a sailor cannot keep his bunk clean and free from vermin, the fault is his own.

Another sharp contrast between the new forecastle and the old is the provision made for serving meals. On sailing-ships the beef kid was but little removed from the idea of the trough that serves pigs. It was set on a chest or on the floor, and everybody dipped for his share. The men ate soup or "scouse" from a pannikin, and cut their solid food with their sheath-knives. On the new ships of the Shipping Board, the men not only have a table and a separate mess-room in which to eat, but good crockery, knives and forks, and a messman to serve them. There is a separate mess for sailors and firemen. The food is good, abundant, and nourishing.

All of these things are vastly different from what was provided for crews before the building of the Emergency Fleet vessels began, and they are a marked improvement over the conditions that prevail on board many of the vessels that come into American harbors and with which our ships compete for trade and commerce. On some of these foreign vessels the sanitary conditions are shocking, with virtually no means of bathing, or even washing, except with salt water in a bucket, and with toilet "conveniences" that are startling. Mess-rooms on such vessels are lacking, and the whole tone of the vessel is vastly inferior to that of our American ships, a condition that is reflected in the lesser efficiency of the crew. Indeed, it can be said that the lot of the crew on these ships is not much better than that of the old-time sailors of the sail, in the years when Dana went to sea and wrote so vividly of a voyage around Cape Horn on which, for days on end, the air in the dark forecastle was so bad that the light "burned blue."

The American boy who goes to sea to-day in an American vessel will find home comforts and sanitation as good as modern appliances can make it.

In the fabricated ship of the Submarine Company's type, the total weight of the structural steel required is 1,564 tons, 462 tons being in shapes and 1,102 tons in plates. The only ship sections used in the design are a few bulb angles at both ends, amounting to about 1½ per cent. of the total weight, or 23 tons.

It was required that all drawings should be approved by both the American Bureau of Shipping and Lloyd's Register. This meant that wherever in any particular the rules of the two societies differed, it was necessary to adopt the more stringent. This resulted in a slightly heavier ship than would have been obtained by classification in one society alone. Notwithstanding the increase in the weight between these ships and those built with ship-classification steel, it has been demonstrated that commercial structural shapes were used advantageously, and their use greatly relieved the steel-mills that were required to furnish classification ship material for all yards other than the so-called fabricated yards.

Ninety-six per cent. of the total weight of the hull of these 5,000-ton ships was fabricated at outlying establishments. Twenty-six steel-mills supplied material to 56 fabricating plants, not to mention the contributing labors of 200 foundries and machine, pipe, joiner, and equipment shops that figure more or less in the making of a cargo-carrier. The fabricating shops were scattered all the way from Massachusetts to Wisconsin, and as far south as Virginia. Inasmuch as the parts were fabricated in such a large number of different shops, and as these individual parts were interchangeable, one of the first considerations was to make necessary provision for giving the information to the fabricating plants in such a manner as to insure accuracy of work and speed in production.

It was the bridge engineer working in conjunction with the naval architect who properly interpreted the details of ship fabrication into the language of the bridge shop, thereby permitting the structural shop to fabricate the completed ship material with the tools and facilities available. This operation was one that the old-line ship-builders doubted could be carried out with success. As far as the straight parts of the parallel middle body, flat tank tops and flat decks were concerned, it was an easy matter. It was simply a case of making detailed drawings exactly as they would be made for a railroad bridge, giving definite location by dimension of every hole, rivet, and each piece of steel. In all, some 330 drawings were made of details of hull fabrication.

From these drawings all the steel was ordered from the mills exactly to the length required. In the molded portion of the ship, however, the problem became more complicated to the bridge engineer, as this section of the hull could not be mathematically developed. Such plates and shapes were developed full size on the mold loft floor, reproduced on template paper, having all rivet-holes punched in them on proper gage lines, and, for a matter of record, carefully measured up and detailed as to dimensions on individual drawings.

Not only was the hull material fabricated outside of the shipyard, but also the material for machinery installation, such as piping, valves, and innumerable fittings. The piping was delivered bent, with flanges attached, to exact shapes, requiring only assembling in the ships. All joiner work and wood sheathing was also fabricated, and laid down in the shipyard in complete ship-sets; and since it was received entirely finished, painted, varnished, and with hardware attached, it became merely a matter of placing it in the ship.

Undertaken more or less as an experiment, born out of the necessities of the war, regarded with hesitation and suspicion by the old-line ship-builders, the fabricated ship has brought to a full realization the faith that its originators had in it from the first. It is another demonstration of the American idea of doing things on a big scale, of specializing on standardization and then producing in quantity.

Already Europe has recognized the value of the "manufactured" ship; for several of these ships have been sold to Italian purchasers, and the keenest interest has been manifested in them also by French and Norwegian operators. Even British builders have been obliged to admit their merit. Unquestionable in their construction, there were utilized for ship-building in a time of greatest need not only plants remote from the seashore, and materials that had never before been regarded as adaptable to vessel-building, but a huge army of men whose services would not otherwise have produced maximum results.

CHAPTER VI

THE HOG ISLAND SHIPYARD

THE Delaware River has been called the Clyde of America. Before the war it was the center of our limited ship-building activities, and to-day it is the greatest ship-building district in the world. Its potential capacity nearly, if not quite, equals the total capacity of Great Britain. Prior to the year 1917 it boasted of several magnificent plants, including Cramp's, one of the oldest and best equipped shipyards in the country, the New York Ship-Building plant at Camden, the Chester yard, and the Pusey & Jones plants at Gloucester and at Wilmington.

The war brought extensions to these establishments, and added the Sun yard at Chester, the Merchant at Bristol, and at Philadelphia the Hog Island fabricating yard, which, with the possible exception of the Essen works in Germany, is the largest industrial enterprise in a single location in the world.

Much has been said and written in criticism of Hog Island, its expenditures and its management. For the most part, such criticism has not been of a constructive kind, for no aid ever came to the Emergency Fleet Corporation from anyone who expressed displeasure or dissatisfaction with the work that was being done at Hog Island. It was more in the nature of objections and exceptions coming from fault-finders. It arose, too, from a lack of appreciation of the purpose for which the yard was built, a failure to realize its magnitude, and a want of understanding of the whole gigantic undertaking.

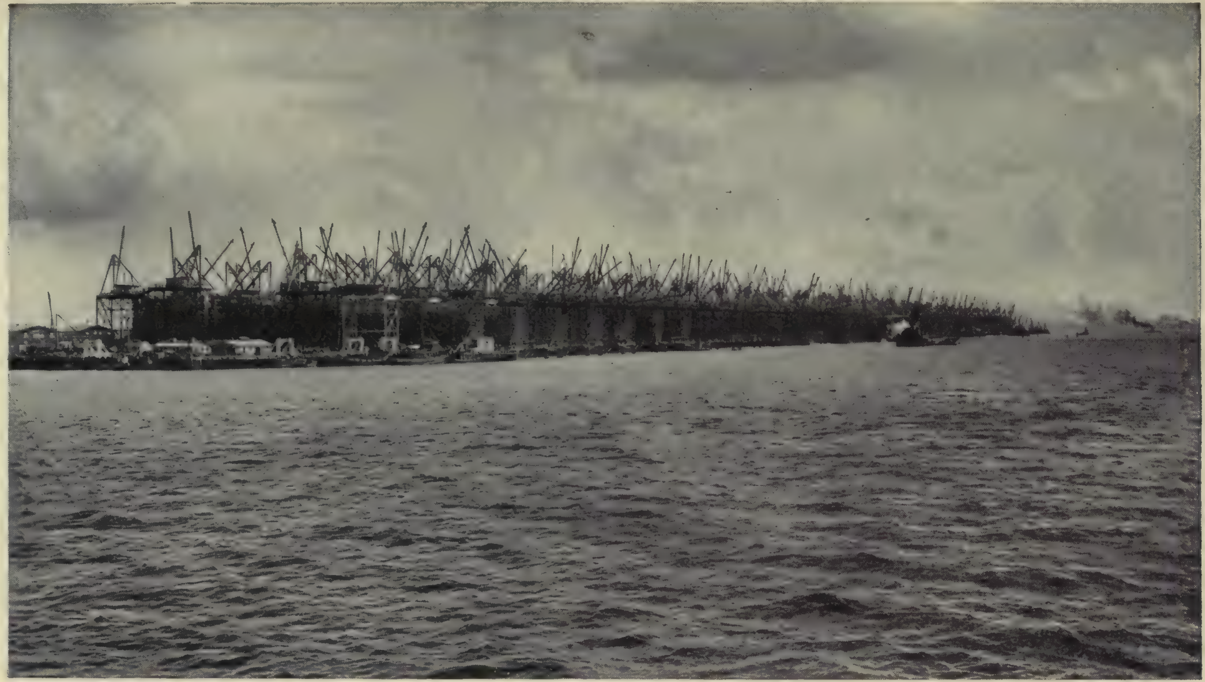
Hog Island was build for the multiple production of ships, for the construction of vessels in accordance with the American system of doing big things in a big way. It was erected to produce ships faster than the Germans with their submarines and mines could sink them, whether the war should last seven months or seven years or seventeen years. It was a war-time necessity and not a commercial enterprise. If the war were in progress to-day, we would see the Hog Island shipyard delivering, fully equipped for sea service, with General Electric turbines, one 7,500-ton steel-constructed, oil-burning cargo vessel or transport every seventy-two hours, and I am not certain but that the rate of production would have been even greater.

If there is any valid criticism that should lie against Hog Island, it may be found in two errors of judgment: first, that it was too large; and, second, that its cost greatly exceeded the estimates. The first is tenable only because the war was brought to a close a little more than a year after the construction of the yard was begun, a consummation that, while devoutly to be wished, could not possibly have been foreseen. Moreover, the fact that Hog Island was so large, and presented such enormous possibilities for the production of ships, may have been a contributing factor in bringing the war to a close sooner than would otherwise have been the case.

The error of judgment that brought criticism upon the projectors and the constructors of the Hog Island yard was in underestimating the amount of money that would be necessary to build it. The original estimate, when General Goethals asked how much it would cost, was placed at $21,000,000. To this figure the Fleet Corporation added extra construction, which brought the estimate up to $27,000,000. Instead, the yard required an outlay of $66,000,000. Had the builders estimated that the yard would cost $100,000,000, and had they gone ahead and built it for what it actually did cost, namely two thirds of that amount, the psychology of the situation would have been that they would have been hailed as economists rather than spendthrifts; for the public, which has never understood Hog Island, would have believed that a saving of $34,000,000 had been effected. As a matter of fact, the estimate at best was merely a guess, and $100,000,000, as it developed, would have been a better guess, nearer to the correct figure, than $27,000,000.

But Hog Island did not present the only or even the most striking error of judgment in making estimates for the construction of public and semi-public works. The Panama Canal was originally estimated to cost $145,000,000, while the final cost was approximately $435,000,000. It was estimated that the work would be completed in about two and a half years, whereas it required nine years, notwithstanding the fact that the project had been surveyed for fifteen years, first by the French government and later by our own. The Kansas City Terminal was originally estimated to cost $30,000,000, and upon completion was found to have cost $50,000,000.

The great difficulty in providing anything like an accurate estimate for the building of the Hog Island plant was due to the fact that there was neither time nor opportunity for planning. In any great undertaking call-



River View of the Fifty Shipways at the Hog Island Yard

ing for the outlay of even $27,000,000, there should be a period of from three to six months devoted to careful surveying, planning, and figuring by a corps of competent engineers. There was no time for anything of that kind at Hog Island, for planning had to be contemporaneous with building. The army engineers spent two years and ten months in preparation and in planning for the building of the Panama Canal before they began actual construction. It took seven years more to conclude the work — and that, too, under conditions of peace.

That the Hog Island yard might have been built for much less than $66,000,000 is not open to successful contradiction; but that it could have been built under the conditions prevailing at the time, and with the same objects in view, for a lesser sum than was expended is a question that is not so conclusively answered. With time the essence of all things, it is an exceedingly difficult matter to draw the line between economy and extravagance. If what was termed extravagance meant the quicker production of much needed ships, if it resulted in the saving of human lives, perhaps thousands of them, expedition in the transportation of munitions and supplies, and a more speedy termination of the war, who is there to say that the so-called reckless expenditure of money in the building of Hog Island was not a misnomer, and that, on the contrary, it was an economy? When the Germans were sinking a million tons of ships a month, if one man drawing a salary of $20,000 a year could, by reason of his skill and ability as an executive, manager, or superintendent, produce one ship one day quicker than another man who gave his services without compensation could produce a like ship, it were certainly an economy to employ the $20,000 man — a financial as well as a humane economy.

The location of the Hog Island yard and the general conception of its plan had the approval of some of the best engineers of the country, and subsequently received the indorsement of many competent authorities, including such men as Commander Stevenson Taylor, the president of the American Bureau of Shipping, and Mr. James French, the chief surveyor for the United States and Canada for Lloyd's Register, who declared it to be the greatest undertaking of the kind in the world. Not only was it in the center of the greatest ship-building district in the country, but in a center that afforded the greatest opportunities with respect to labor, materials, and railroad facilities.

When the American International Ship-Building Corporation, a newly organized subsidiary of the American International Corporation, signed its contract with the Emergency Fleet Corporation, Hog Island was a low, marshy tract of ground on the Philadelphia river-front, the home of bull-frogs and reed-birds, with only a single shack upon it. The ground itself, consisting of something over 900 acres, was acquired by the ship-building concern, and an option was given to the Fleet Corporation to buy it at its purchase price when the contract should be completed. For the construction of the yard itself the company received no pay, its compensation being confined entirely to fixed maximum and minimum fees for the building of the ships for which it was given contract.

This contract was executed in September, 1917, and, notwithstanding the hindrances incident to labor shortage, railroad congestion, and a winter so severe that it became necessary to blast the ground with dynamite in order to drive piling, the work had so far progressed that the first keel was laid on February 12, 1918. Work on this vessel and upon others continued while the yard itself was undergoing completion. In a little more than ten months from the time ground was first broken, the first ship was launched, christened by Mrs. Woodrow Wilson, in the presence of more than fifty thousand people.

Some conception of the magnitude of the undertaking may be gained by the figures it presents. In building the yard 151,522 piles were used, with an average length of 51 feet each, making 7,727,622 linear feet of piling. This amount of piling would make a railroad trestle that would reach from Washington to Wilmington, Delaware. More than 150,000,000 feet of timber were used in plant construction, enough to build a boardwalk seven feet wide and one inch thick from New York to San Francisco and leave a surplus. The floor-space of the buildings covers 103 acres. There are fifty shipways and seven piers, each 1,000 feet long and 100 feet wide, extending along a water-front of two and one fourth miles. There are 82 miles of railroad track and 36 warehouses. There are 29 miles of water-piping, and 1,300,000 gallons of water are filtered and chlorinated there daily. There are 26 miles of sewers and drains, 675 miles of wiring, and 3,000 miles of telephone wiring, with more than 2,000 telephones and an average daily traffic of 25,000 calls. More than 3,500 concerns furnished material for the construction of the yard, while the maximum number of employees at one time was in excess of 41,000, with a pay-roll running at times as high as $4,000,000 a month.

The completion of the company's contract for 180 ships called for 3,271,000 separate pieces of hull steel and the driving of 102,000,000 rivets, aside from 22,000,000 to be driven at the different fabricating plants, or a total of 124,000,000 rivets, which, if rolled into one seven-eighth-inch rivet would extend a distance of 4,200 miles. The total amount of steel required was 630,000 tons, with 337,590,000 rivet-holes. The area of the rivet-holes alone would cover 24 acres. The hull steel bought for the entire Hog Island ship-building program would build twenty Grand Central Terminals, or thirty Woolworth Buildings, or ten Quebec Bridges, or seven miles of twenty-story city structures 100 feet deep, or lay 4,000 miles of 90-pound railroad track.

The 750 water-tube boilers ordered for these ships, with combined horsepower of 750,000, is more than is consumed by the entire city of Chicago. The 180 pumps in these ships, if operated simultaneously, would pump 2,275,000 gallons of water a minute, which is greater than the capacity required to supply the entire population of the United States, allowing 30 gallons a day per capita.

The timber in these steel vessels would build comfortable homes for a city of 25,000 population. They required more than 6,000 life-boats and 1,700 flat-cars to move these life-boats to Hog Island; they required 300 miles of conduit, 760 miles of wire, nearly 700,000 lights and outlets, and 11,500 horsepower-generating capacity as well as other equipment in proportion.

Thirty-eight steel-mills provided the steel, which was sent to 88 fabricating plants, and this material reached the Hog Island yard over 617 different routes of travel.

I have cited these figures and comparisons in order to convey some idea of the magnitude of the scale upon which more than a million tons of our new merchant marine was constructed. Hog Island cannot be visualized. It must be seen to be appreciated, and I doubt whether any unprejudiced person ever visited and inspected this great institution who did not go away convinced that he or she had seen one of the industrial wonders of the world.

The building of the Hog Island shipyard must always be regarded as a war measure, the same as the building of a great munitions plant. Its continuation as a shipyard, either by the government or as a private enterprise, is highly improbable, and, I believe, impracticable. As I have heretofore pointed out in the case of the submarine plant at Newark, it is not a yard for the building of ships, but rather for the manufacturing of ships, and as such it could not be successfully operated unless it were to produce two ships a year upon each of its 50 ways. That would mean 100 ships annually of a standard type, a number greater than the shipping industry could absorb. On the other hand, it might be quite possible for private enterprise to maintain successfully the present government-owned Merchant yard at Bristol, Pennsylvania, which has only 12 ways, and where vessels of a larger size, namely, 9,400 tons, are constructed. The ships that have been turned out at the latter plant are among the best under the flag today, which fact, together with their size, makes them especially desirable for many trades.

But even if Hog Island had never launched a ship, instead of nearly a million tons of our new fleet, its construction would be justified, for two reasons. The first is the moral effect that its construction had upon the enemy, in showing them the American spirit and the capacity to produce; and, second, the possibilities that the yard now presents for peace-time uses.

The present value of the yard as a terminal is worth a very large part of what it cost the government. Even if there were another suitable site available, the facilities that Hog Island now offers as a terminal could probably not be duplicated for much more than half of the money outlay that it represents; and it must be remembered that it was built under many handicaps in time of war, while its potential value to the city of Philadelphia, and that great manufacturing, exporting, and importing district of which it is the center, is incalculable. It is, in fact, to-day a terminal, as far as availability is concerned, although it is not so used. Its future employment as such would mean much to the development and maintenance of our overseas trade.

There are already on the island twenty-six wooden and brick-lined warehouses and a large concrete warehouse, so designed that they would be available as storage-houses in a terminal scheme. Each warehouse is served by a railroad track for its entire length, and has a platform adjoining a street, so that it may be used alike by railroads, teams, and motor-trucks. There are twenty-five miles of railroad track serving 148 acres of steel, machinery, and outfitting storage-yards so designed as to be utilized for the storage of any material that might be stored in the open.

The railroad tracks are constructed on a maximum of 104-foot centers, on which are operated locomotive cranes equipped with fifty-foot booms, so that every square foot of space may be reached by a locomotive crane.

In designing the seven outfitting piers, two standard steam railroad tracks were placed on each side of the piers, with double cross-overs in the center between each two tracks, which would make them very effective for commercial uses in loading and unloading heavy freight. In addition, there are immense gantry cranes and self-propelling locomotive cranes, so that the heaviest cargos might be lifted from freight-cars to the holds of vessels, or from the holds to cars standing on the tracks on the piers. These piers have substantially the same clear-water space between them as the great Bush Terminal piers at Brooklyn, New York, and are thoroughly equipped with every modern appliance. Their size would enable them to handle twenty-eight 7,500-ton vessels at one time.

Terminals for the proper handling and despatch of freight cargos are quite as essential to foreign commerce as are ships in which the cargos must be carried.

CHAPTER VII

METHODS BY WHICH TONNAGE WAS ACQUIRED

IT was a fortunate circumstance for the United States, and for the world, that at the time of our entrance into the European war there were some 600,000 tons of German ships interned in American ports. They had been there since the outbreak of hostilities. To escape capture by the British navy, these vessels had scurried to American harbors and sought the protection of a neutral power, once the dogs of war were released. There, for more than two and a half years, they lay impotent and helpless. From the German standpoint, it would have been far better had they never sought the security of peaceful ports, but had been sunk at sea.

But German militarism, which had prepared for everything except that which happened, did not see far enough into the future to visualize the use to which these vessels, comprising a very substantial part of Germany's magnificent commercial fleet, would ultimately be put. The German militarists had expected by a quick blow to compel a speedy peace, and it is doubtful whether, at the outset, the wisest Teuton dreamed that the United States would ever become a party to the great conflict. As the war progressed, and Germany by the unrestricted use of the submarine hoped to destroy the British commercial fleet, or so reduce it as to force Britain to starvation and surrender, it had been anticipated that German vessels, snugly guarded in home and neutral harbors, would be able to emerge at the close of the war and give Germany the commercial supremacy of the seas. Already she was second only to Great Britain as a maritime power.

But the weapon with which Germany had thought to destroy her enemy was ultimately to be the means of her own downfall, since its employment was one of the direct causes that brought the United States into the struggle.

Had the United States been obliged to construct transports with which to move our troops to France, our shipping problem would have been much more serious than it was, and the war would not have terminated when it did. A substantial portion of the German interned tonnage was represented in passenger ships, some of them not only the pride of German ship construction, but the largest ships afloat. The *Leviathan,* formerly the *Vaterland,* which carried more than 10,000 of our soldiers across the Atlantic on each of her voyages, was one of these.

As was to be expected, despite every precaution that could be taken, the German crews had endeavored, contemporaneous with the adoption by the American Congress of the War Resolution, so to cripple these vessels that they could not be used immediately. They had believed, or at least had hoped, that they had rendered them incapable of repair in time to be utilized for the transportation of American troops. Within a few months, however, every disabled German ship had been put in shape and was ready for the sea under the American flag. The vessels having been seized at once, following the declaration of war, the Navy Department undertook the repair of some of them, while the remainder were put in order for service under the direction of the Shipping Board. As a consequence of surveys made of these vessels, it was determined that they could be used for the carrying of troops perhaps as rapidly as the troops themselves could be trained and equipped. Accordingly, the Emergency Fleet Corporation gave its attention to the building of cargo vessels rather than of transports. Thus it was that we built no passenger-carrying ships during the war, and arranged for the building of transports only after a definite amount of cargo tonnage had been turned out.

With the signing of the armistice, and even before that time, when peace seemed to be in sight, the contracts for these transports were largely canceled. Under the American flag, by the employment of the repaired German interned ships, we transported approximately one half of all our troops to France. Out of approximately two and a quarter million American Expeditionary Forces, the British carried a total of 1,107,200 of our soldiers to France, and the remainder were transported in American vessels, of which a goodly portion were ex-German. The British returned only 109,400 of our boys, the others having been repatriated in our own bottoms or in the vessels taken out of Germany after the war and allocated to the United States for the purpose of the troop movement by the Allied Maritime Transport Council.

Negotiations with Brazil, Uruguay, Peru, and Cuba brought to us the use during the war of other German cargo vessels, but not their permanent retention under our flag. A very important part of Germany's tonnage on this side of the Atlantic was interned in Argentina

S. S. "LEVIATHAN," FORMERLY THE GERMAN "VATERLAND"

One of the two largest vessels afloat, interned in New York harbor until our entrance into the war when she was taken over by our Government, and the damage which her crew had done to her in an effort to make her useless to us was repaired. She made 19 round trips across the Atlantic during the war, carrying 95,000 soldiers eastbound and 97,700 westward bound, or a total of 192,700. Her maximum capacity, which she carried on nearly every trip, was in excess of 10,000 persons.

and in Chile; but, as these countries never declared war upon Germany, we were not able to obtain these ships, despite repeated efforts to do so. In fact, it is no secret that the chief purpose of the effort that was made by the Allies as well as the United States to induce Argentina to array herself beside the United States and her sister Latin American republics against Germany was to gain possession and the use of the very valuable German tonnage interned in several Argentine ports. The small number of Austrian vessels interned in our harbors, amounting to about 58,000 tons, was acquired by purchase before our formal declaration of war against the dual monarchy.

Our fleet was further augmented by the acquisition of more than a million tons of ships from other countries, the majority of them neutrals. Through a working agreement with the Allied Maritime Transport Council, before which, but not upon which, our country was represented by Commissioner Raymond B. Stevens, and George Rublee, we obtained a division with the Allies, chiefly Great Britain, of the fleets of Norway, Sweden, and Denmark under terms of charter. While these vessels were only temporarily added to our merchant marine, they not only served to transport vast quantities of supplies to our troops in France and to carry on the necessary commerce with other countries, but they aided materially in giving our people an experience in the handling and operation of ships, which experience is now being put to practical peace uses.

The next largest block of tonnage obtained for war purposes was the 535,000 tons of Dutch ships taken over by the United States under the right of angary, a recognized principle of international law which confers such extraordinary military powers upon a belligerent. Originally an effort was made to obtain the use of the Dutch fleet under an agreement similar to that by which the fleets of the other neutrals had been acquired, which implied charters and an understanding that these countries should be properly provisioned. The Dutch government at first undertook to carry out such a temporary arrangement, which included the use of certain Dutch ships for Belgian relief and for supplying foodstuffs to Switzerland under guaranties of safe conduct to the port of Cette, France. The pressure of her warlike neighbor, however, compelled Holland to abandon that plan. For weeks thereafter the Dutch ships lay tied up in American harbors, as they had lain for weeks before, unable to put to sea because our government exercised its right to withhold bunkering facilities. At length, on March 20, 1918, they were seized by direction of the President and immediately put into our service. That this action was secretly welcomed by the Dutch government I have never doubted, despite formal protest. Holland was a small country, anxious to preserve her neutrality; yet on the one hand she was besieged by the Allies and the United States for the use of her tonnage, while on the other hand, if she voluntarily consented, she exposed herself to a fate perhaps not unlike that of Belgium.

In the last analysis, the Dutch government represented the Dutch owners of these vessels, who were anxious to have them profitably employed; and, while the protest against forcible seizure was official, the action on the part of our government could not have been otherwise than pleasing unofficially, for it not only guaranteed the return of the tonnage or its equivalent, but it meant payment for its use, and, moreover, food-supplies for Holland. The course of our government toward the Netherlands and her citizens, ship-owners, shippers, and crews, was in every way commendable. It compensated the owners fully for the use of their ships, it transhipped wherever possible the cargos taken from these vessels, sold perishable and damaged cargos, indemnifying the shippers against loss, entertained as guests of the nation the crews of these ships, paid their wages, and returned them as speedily as possible to their own country. The ships that were obtained, however, were worth at that time all and more than the trouble and money expended in bringing them into our service.

Having provided for maximum production of ships in the United States and acquired all of the neutral tonnage available, the Shipping Board sought the aid of Asia in furnishing ships. Japan and China were both at war with the Central Powers, and they offered the last possible source from which ships might be obtained. Japan had 23 vessels of 151,000 tons dead weight which we were able to charter. She also had either completed or building 15 other vessels of 128,000 tons, which we were able to purchase upon condition of providing her with one ton of steel for each ton of ships so acquired. This steel had previously been purchased in the United States, but its exportation to Japan had been prohibited by the War Trade Board when our own necessities arose. Prior to the war Japan had purchased the bulk of her ship steel in England; when that source was no longer available, she had contracted for steel in the United States, but it had never been delivered. By licensing its exportation we were thus enabled to acquire the amount of newly constructed tonnage stated. Further than that, we entered into direct contract with the builders of Japan to construct 30 additional steel vessels, aggregating 245,000 deadweight tons, for which we agreed to provide steel in the ratio of one ton of steel for two tons of ships. The completed ships directly bought from Japan cost us from $215.50 to $265 a ton, a price somewhat higher than the cost of production of ships during the war in American yards, while the price paid for those built under contract was $175 per ton, which is about $25 a ton under the average cost of our own steel fleet built during the war. This contract involved an expenditure of $42,875,000 for building new ships.

The attitude of the Japanese government and of the Japanese builders in our transactions with them, covering the entire period of the negotiations and the execution of the contracts, was most honorable and praiseworthy, and evinced a sincere desire to place at our disposal the highly efficient Japanese ship plants and to aid in every way possible in expediting the production of ships.

No less commendable was the position of the Chinese government, which offered the facilities of its modern shipyards at Shanghai, where we contracted to have built four steel vessels of 10,000 tons dead weight each, with the option of 80,000 additional tons. This yard is owned by the Chinese Republic, and operated by it with the aid of a technical staff composed chiefly of Scottish ship architects and builders. As in the case of Japanese construction, the United States supplied the steel for these ships. In both instances the ships, those built in Japan and those constructed in China, are of the highest quality of workmanship, and of a type that will prove very serviceable in our foreign trade.

Our new merchant fleet as it floats to-day represents the most spectacular achievements in the history of shipbuilding in this or any other country. Conspicuous among these achievements was the launching on July 4, 1918, of 95 steel, wood, and composite ships, totaling 474,464 dead-weight tons, in American yards — fully 50 per cent. of which yards were not in existence a year before. Thus, in one day, there were launched 188,900 dead-weight tons more than the total output of sea-going vessels of 1,500 tons or over in the best pre-war year of American shipping.

This was the Independence Day message of warning that the American ship-builders sent to the Kaiser.

The news of our Fourth of July accomplishment was cabled to General Pershing, in order that he might acquaint the boys in the trenches with what we were endeavoring to do at home to back them up. The manner in which this information was received by General Pershing and those under his command is shown by his response, which was cabled to me:

A. E. F. Headquarters.

Hurley Shipping Board,
Washington:

The launching of about 100 ships on the Fourth of July is the most inspiring news that has come to us. All branches of the army in France send their congratulations and heartfelt thanks to their patriotic brothers in the shipyards at home. No more defiant answer could be given to the enemy's challenge. With such backing we cannot fail to win. All hail, American shipbuilders!

Pershing, Commanding.

American shipyards hold all records for fast shipbuilding. Before the war from nine to twelve months were required to build a 3,500-ton steel sea-going vessel, and from a year and a half to two years to complete a vessel of 8,000 tons or over.

In July and August of 1918 only thirty-four calendar days elapsed between the keel-laying and delivery of the 3,500 dead-weight ton steel freighter *Crawl Keys.* This world's record was made by the Great Lakes Engineering Works, of Ecorse, Michigan. The keel of the *Crawl Keys* was laid on July 11. The vessel was launched in the record-breaking time of sixteen calendar (fourteen working) days. On August 13 the *Crawl Keys* was completed, and on the next day she was accepted by the Shipping Board and placed in commission.

Only thirty-seven calendar days were required in May and June to build the *Tuckahoe,* a steel collier of 5,500 dead-weight tons. This sensational pace for war-time ship-building was set by the New York Shipbuilding Company of Camden, New Jersey.

A world's record was made when the *Tuckahoe* was launched, 90 per cent. complete, on June 5, in 27 days 2 hours and 50 minutes from keel-laying. Another world's record was made ten days later, when the *Tuckahoe,* ready for service, was delivered to the Shipping Board. The *Tuckahoe* was carrying coal to New England on the fortieth day.

The ten fastest built sea-going vessels in the world were built in American shipyards. They are:

Crawl Keys, freighter, 3,500 dead-weight tons, Great Lakes Engineering Works, Ecorse, Michigan, 34 (calendar) days.

Tuckahoe, collier, 5,500 dead-weight tons, New York Ship-Building Company, Camden, New Jersey, 37 (calendar) days.

West Lianga, freighter, 8,800 dead-weight tons, Skinner & Eddy Corporation, Seattle, 78 (calendar) days.

West Hosokie, freighter, 8,800 dead-weight tons, Skinner & Eddy Corporation, Seattle, 79 (calendar) days.

West Hobomac, freighter, 8,604 dead-weight tons, Skinner & Eddy Corporation, Seattle, 80 (calendar) days.

Lake Narka, freighter, 3,530 dead-weight tons, American Shipbuilding Company, Cleveland, 84 (calendar) days.

West Cohas, freighter, 8,554 dead-weight tons, Skinner & Eddy Corporation, Seattle, 85 (calendar) days.

West Gambo, freighter 8,554 dead-weight tons, Skinner & Eddy Corporation, Seattle, 86 (calendar) days.

West Ekonk, freighter, 8,554 dead-weight tons, Skinner & Eddy Corporation, Seattle, 88 (calendar) days.

West Alsek, freighter, 8,529 dead-weight tons; *West Apaum,* freighter, 8,516 dead-weight tons; and *West Gotomska,* freighter, 8,586 dead-weight tons, Skinner & Eddy Corporation, Seattle; and *Lake Gardner,* freighter, 3,300 dead-weight tons, Great Lakes Engineer Works, Ecorse, Michigan, 92 (calendar) days.

The speed that American ship-building attained in 1919 is further shown by the following launchings made in record time:

Manitowoc Shipbuilding Company, of Manitowoc, Wisconsin, launched the 3,400-ton steel freighter *Corsicana* on August 7, 28 (calendar) days after keel-laying.

Bethlehem Shipbuilding Corporation, of Alameda, California, launched the 12,000-ton freighter *Invincible* on August 4, 31 (calendar) days after keel-laying.

American Shipbuilding Company of Cleveland, launched the

3,500-ton steel freighter *Lake Narka* on May 4, 46 (calendar) days after keel-laying.

Baltimore Dry Dock & Shipbuilding Company, of Baltimore, launched the 6,450-ton steel refrigerator ship *South Pole* on June 17, 46 (calendar) days after keel-laying.

Bethlehem Shipbuilding Corporation, of Alameda, California, launched the 12,000-ton steel freighter *Defiance* on July 4, 46 (calendar) days from keel-laying. On the same day this yard launched three other 12,000-ton steel freighters, one of them, the *Victorious*, 66 (calendar) days from keel-laying.

Early in 1918 I predicted that we would build six million dead-weight tons of shipping. My prophecy was verified as the following letter from my successor, the Hon. John Barton Payne, will show:

Washington, D. C., Dec. 10, 1919.

Dear Mr. Hurley:

Those skeptics who thought you were extravagant in stating you would build six million tonnage this year should be advised of the following results:

Deliveries from January 1 to December 1, 1919, are

Steel	4,472,000
Wood	1,298,000
Composite	42,000
Concrete	6,500
Total	5,818,500

By January 1, 1920, the six million figure will be exceeded.

Very truly yours,
John Barton Payne,
Chairman.

Honorable Edward N. Hurley,
28 East Jackson Boulevard,
Chicago, Illinois.

On Memorial Day, 1919, the Hog Island yard eclipsed all records of launchings by dropping into the waters of the Delaware River five vessels aggregating 38,000 dead-weight tons.

I have cited these records for the purpose of showing what has been accomplished in ship construction on the American principle of doing big things in a big way, and in the belief that the application of the same principle will materially aid in the successful operation of these ships under the American flag.

CHAPTER VIII

THE APPLICATION OF AMERICAN METHODS

IN considering our shipyards in the days of the decadence of our merchant marine, we used to express the hope that something might be done to revive them once more, and by degrees place them on a footing with the ship-building industries of Great Britain and Germany. Under war pressure, we suddenly rehabilitated them with the best technical and manufacturing energy in the country.

The steel man, the bridge man, the machine-builders, the contractors, the lumbermen, and others went down to the coast, set up their shipyards, and applied their own large-scale methods to the new task. They entered into competition with one another to demonstrate their individual efficiency or their method of doing things. They succeeded, and they have again made us a great ship-building nation. Because of this development I am convinced that, when conditions again become normal, or somewhat approaching normal, we shall be able to maintain the industry so rehabilitated, and at the same time continue to pay American wages in our shipyards and in our steel-mills.

On the Great Lakes in peace times we built good ships, big ships, the most efficient ships in the world, at costs per ton that were the despair of foreign builders, and we built them while paying the standard American wage. The *Hoover and Mason,* a well known ore-carrier on the Great Lakes, was built for $30 a dead-weight ton. A fair average price for building medium-size cargo steamers in Great Britain before the war was from $40 to $50 a ton, and the same type of sea-going ship then cost in the United States from $60 to $70 a ton.

We had a most efficient ship-building industry on the Great Lakes which built vessels at low costs, and they were operated at correspondingly low costs.

One of the earlier problems of the Emergency Fleet Corporation concerned the use of this industry during the war, as well as the vessels employed on the Lakes. The Welland Canal limited our ability to avail ourselves of the shipyards there, as well as of the cargo-carriers that plied the waters of these inland seas. Such ships as could be taken through the canal were brought out while navigation was open, and were converted for ocean service. Some of the larger ones, in fact, about twenty-three that were too long to permit passage through the locks, were brought into Buffalo, there sawed in two, equipped with temporary wooden bulkheads, and thus taken through the locks. Once through the canal, they were towed to Toronto or Montreal and rejoined. It was a difficult and laborious process, but in the dire need for tonnage it was a welcome one, and again illustrated Yankee ingenuity and resourcefulness.

I recall an amusing incident in connection with the sawing in two of these vessels and their subsequent rejoining. Owing to the novelty of the undertaking, it received somewhat wide publicity and aroused much interest among newspaper readers. One enthusiastic and well meaning woman wrote to me suggesting that, instead of reuniting the sections after the vessels had been cut in two to go through the canal, that we merely " couple " them together in some manner which she did not explain. If that were done, she said, and thereafter a torpedo should hit one end or section of the vessel, tearing a hole in her side, it would be possible to "uncouple" the ship and proceed with the unimpaired portion, thus enabling the members of the crew to save their lives and salvage at least one half of the cargo.

We handled the problem of utilizing the Lakes shipbuilding industry by limiting the size of the vessels built there to 4,200 dead-weight tons, which size of ship could enter the Welland Canal locks and come through with ease. Because of the prolific ability of the Lake yards to produce ships, we now find ourselves with a surplus of vessels of the Lake size, or at least too many to constitute a well balanced fleet. It was because of this fact that a willingness to sell our smaller tonnage to foreign flags was manifested soon after the signing of the armistice.

Before the war the Lake builders constructed a special type of ship which was standardized, and they were able to produce in quantities because there existed the traffic that warranted them. The success of ship-building and ship operation on the Great Lakes has convinced me that it was a lack of true American energy and interest in ships that kept us, as a nation, from really getting started again in the shipping industry. No other country built ships so cheaply or so well as we in the days when we had a real shipping industry, and no nation operated ships more economically than ourselves in the old days when it was one of our leading activities. What really happened to our shipping was that, after the war between the States, the American youth thought he would find better opportunities on shore than at sea, and the great West then drew American energy and imagination.

As long as we endeavored to compete with other nations in the building of ships without applying our characteristic way of handling things in large units, we were certain to fail, for we were playing the ship-building game the other fellow's way. Now that we can play it our own way and apply American man power to the problems, there should be no more problems.

Mr. J. W. Isherwood, an English naval architect of international reputation, former ship surveyor to Lloyd's, and the inventor of the Isherwood system of construction for ships, after having visited many of our yards and inspected them and our methods carefully, said:

> The United States will inevitably advance and will become our greatest and keenest competitor. It is not at all improbable that America will produce such a plentiful supply of ships as to revolutionize sea carrying.
>
> American ship-workers make higher wages than British, but they will produce ships quicker and cheaper. If England does not wake up, she will be left as a ship-building nation. American labor-saving appliances will presently represent an amazing reduction in cost and a speeding up of output which will soon wipe out the heavy capital charges involved in wartime.

Suppose we were to play ship-building as we have played iron-mining and steel production. If you ask people why we are able to make steel cheap enough to sell to foreign ship-builders in competition with their home supplies, they repeat the old fallacy about America having great natural advantages in iron ore and other raw materials. This is untrue. Our iron-ore deposits on the Great Lakes are 80 miles from the docks, then 1,000 miles from Lake Erie unloading points, and 150 miles again from Pittsburgh. Against that there is the haul from the Spanish mines to England of 750 miles by an all-water route, plus not more than 20 miles at each end from mine to ship and from ship to smelter.

The Spanish route is in a mild climate, and can be traveled all the year round, while our Great Lakes are frozen over for four months of the year, and the ore must be moved in about 230 days. Yet, whereas the ore-ships from Spain to Great Britain make perhaps ten or twelve trips a year, our ore-carriers on the Great Lakes make an average of twenty-two trips a season, notwithstanding their voyage is 25 per cent. longer. This achievement is entirely one of man power in the American sense — output per man employed raised to the highest degree by handling things in great quantities with modern American equipment. It is not a matter of natural advantage at all. The average production of iron ore per employee of the United States Steel Corporation is about 2,200 tons annually, whereas the production of the so-called efficient German before the war was only 400 tons per man.

The same kind of man power is applied in agriculture. The American farmer is constantly being scolded because he does not raise as much food on an acre of ground as is produced by intensive methods in crowded Europe, where land is relatively scarcer than labor. But the moment you measure the American farmer by the amount of food raised per man working on the land, he far excels every other farmer in the world. He does this by labor-saving machinery.

As long as we tried to solve the ship-building problem by seeing how cheaply we could build a ton of shipping, the foreigner always won. But now that we find ourselves in possession of a great ship-building industry, we shall see how many tons of shipping per man can be built with the aid of American machinery. Playing the game our way, I believe we shall build so many tons per man that there will be no further trouble on the score of the cost of ships, once normal conditions return.

When we come to the operation of ships, we are handicapped in about the same manner. This problem was always discussed on the basis of cheap labor to sail ships. With abundant opportunities at home in developed industries, no American wanted to compete with foreign seamen on the basis of cheapness — and rightly so. For in the days of our greatest shipping success no American ever played the game that way. Seventy years ago the American ship was known in every port. More than that, it was known as the smartest ship, the speediest ship, the cleanest ship, and the best managed ship. The American sailor was then the best paid and the best fed, and enjoyed the same prestige at home and abroad as the well paid and the well fed American railroad man of to-day, or the skilled American shop or factory operative.

The great new merchant fleet we have will give Americans an opportunity to compete once more on the ocean through man power instead of cheapness. As we pay the highest wages on our railroads, yet haul a ton of freight more cheaply than anybody else in the world, so we shall pay the highest wages on our ships and haul freight more cheaply. This will be done, not by skimping on seamen's wages nor by the employment of coolies, but by working our ships as we work our railroads — with the most modern handling facilities at terminals.

We can do it on the ocean because we have already done it on the Great Lakes. It is a mistake to assume that the navigators who made the Yankee clipper-ship what it was have disappeared. They went to the Great Lakes two generations ago, and their descendants there are now officers of the smartest, speediest, cleanest, best managed ships in the world; and they haul commodities at the lowest freight rates.

There is no particular secret about efficiency. Lake wages are high and Lake freights are low because, through modern terminal machinery, a Lake carrier gets in and out of port quickly and is working all the time, cutting down costly delays in the port, which eat up profits in overhead charges. Celerity in and out of port is the distinguishing feature of our Lake navigation. Carrying cargos of from 6,000 to 13,000 tons, the most efficient ore-ships on the Lakes load at the upper ports in from eight to twelve hours, and unload at the lower ports in from eighteen to twenty-two hours. The season's record haul for a single vessel was made in 1916 by the *Colonel James M. Schoonmaker* which carried 459,186 net tons.

The efficiency of Lake shipping has been attained by constructing the best terminal facilities, equipped with the most modern cargo-handling machinery and using as carriers vessels of a type best adapted to the terminals. The machinery on the Lake docks could not be worked to best advantage if vessels of the ordinary "tramp" type were employed. Similarly, special-type vessels worked in combination with modern machinery will cheapen the cost of ocean transportation and a beginning has already been made by the Bethlehem

Steel Co. in producing steamers specially adapted to the transport of iron ore over long distances.

Quite as important, they increase the morale of the ship's company by eliminating drudgery, putting a premium on skill, and keeping men employed without demoralizing waits in port. It is difficult to maintain the morale of a business hampered by irregular idling periods of a week or more. Spirit, interest, pride in work, cannot be upheld where ships' crews are subject to uncertain, meaningless delays in port, waiting for a berth or waiting for a ship to be unloaded, loaded, repaired, or cleared. An anchored ship is a dead ship from both the standpoint of revenue and the standpoint of crew spirit.

It will be remembered, of course, that our best results in Lake shipping have been obtained with bulk cargo, like ore, coal, and grain. I believe that the same methods can be applied to the more miscellaneous cargo carried by ocean vessels. It has been estimated that, out of 45,000,000 tons of ocean shipping in the world before the war, fully two thirds of the tonnage consisted of tramp steamers carrying low-grade freight and bulk goods. Coal makes up three fifths of the bulk of British exports in normal times, and coal is a commodity that we can develop wonderfully in export channels. Ore is being carried to a greater and greater extent in ocean transit. We export much grain and bring back cargoes of sugar, coffee, wool, and other bulk commodities that lend themselves readily to fast bulk-handling.

In the handling of these bulky commodities we shall hold our own by using such devices as the fifty-ton American coal-car and the lifting and dumping apparatus which tips it upside down and pours the contents into the hold of a ship. We can hasten turn-around by providing handling machinery at our own ocean ports and also at foreign ports as we build up regular traffic.

As an example of the possibilities, take the application of the American petroleum-tank handling method to Manchurian soya-bean oil at the port of Seattle. Before the war our imports of this material came over in five-gallon cans in which we had exported kerosene for the Oriental trade. Cost of handling and loss through leakage were very large. Some Seattle business men saw the possibilities for putting that stuff on a bulk basis, and provided storage-tanks and pumping facilities. Seattle now has storage for 7,000,000 gallons of soya-bean oil, and can bring it over in tank steamers without leakage and at a minimum of handling cost.

Even the miscellaneous freight carried by combination passenger and cargo ships, such as we are preparing to have ply to all ports of Central America, South America, the Orient, and elsewhere, with our troop-ships converted for this purpose, is susceptible of better organization and handling at terminals. These ships are expensive to operate, because they run at a speed of sixteen knots an hour and upward, and have heavy overhead charges. They are, however, to the ocean traffic what the fast freight despatch lines are to the railroads. Through these lines we shall serve foreign customers regularly and quickly, and also bring them back to this country as passengers to buy in our markets.

Organization for this traffic involves machinery for handling cargo at all ports where the liners touch, and also the coöperation of American manufacturers, traders, export salesmen, banks, and foreign distributing branches, to the end that the merchant in Rio de Janeiro or Buenos Aires may have as good facilities for keeping up his stock of American goods as the Kansas City jobber or retailer.

Figures compiled by the United States Shipping Board show, roughly, that ships now traveling from the United States to Europe, Latin America, and the Orient spend in our ports alone about one day for every three and a half days that they are upon the ocean. The complete voyage from New York to Buenos Aires and return, for example, takes ninety-five days, and the average stay in our port is nearly twenty-five days. The voyage to Australia is seventy-five days, and the stay in our ports more than thirty-one days. Even on the three-week round trip to the West Indies there is a stay of one week in our ports.

Through the study of European traffic made necessary by the war, we were able, by better organization of cargo and improved handling devices, to cut seventeen days off the time spent in port on the round trip. On the basis of a 14,000-ton passenger and cargo liner, such a saving amounts to 2,000 tons of shipping — virtually a 2,000-ton ship. Under stress of war we were able to get additional tonnage in this way more quickly than it could be built, and we should be able to do still better in times of peace.

Coal in Illinois is 300 miles from Chicago by railroad. Coal in Wales and the British Midlands is only 200 miles from London by cheap all-the-year-round water transportation. Miners' wages in Britain are materially less than those paid to miners in Illinois. The coal consumption of London and Chicago is substantially the same, about 20,000,000 or 25,000,000 tons yearly. Yet coal in

London in car-load lots costs more per ton than it does in Chicago, and the whole story is told in our more efficient handling. We figure on the fifty-ton coal-car, whereas the people in other countries are content with a ten- or fifteen-ton coal-car, and we pick the fifty-ton unit up and dump it, whereas the old way was to attack the coal-pile with shovels.

Contrasts of this sort have been drawn so often, and they show such startling economies in the American method, that it would be boresome merely to repeat the figures. Our larger and more economical method of handling things has sprung naturally from our greater distances. These methods will naturally be injected into our shipping industry on the ocean as they have been employed on the Great Lakes. Even Americans persist in repeating the statement that our achievements are due to our natural advantages. On the contrary, our methods have been worked out to overcome disadvantages in distance, and when they are concentrated on ocean traffic they will overcome any other disadvantages from which we may have suffered.

Successful American ships will be largely a way of thinking. We must get ships into the consciousness of every American as prominently as railroads. The American manufacturer must think of ships as a continuation of our railroads, which are no longer to stop at tide-water. The American office-boy must know when ships sail and letters are to be posted for world ports, as does the London office-boy. The American community must think of ships as a local improvement; and at our ports we must think of ships in connection with square miles of railroad yards, bringing commodities directly to the sides of ships with the most modern handling devices for every class of cargo, and the operation of ships on close schedule.

Our ocean ports have been neglected, along with shipping, in the past generation, and now we must put thought into them once more. Why should general merchandise be loaded and unloaded by rope and canvas slings, hoisted by the ship's own machinery which often freezes in our cold winters, when we have devices like the elevator and automatic conveyor to handle output in our factories and warehouses? Shall we be content with antiquated port facilities here at home, now that we have taken an old style coastwise port in France, multiplied its harbor capacity fifty times, trebled its berth capacity, increased its loading facilities tenfold, linked it up with a yard containing 225 miles of railroad track, and made it marvelous to our French associates in the war? Out of our experience in building several such ports in France we shall learn how to rebuild our ports at home.

I have dwelt upon these matters because I believe that what we were able to do on the Great Lakes, plus our accomplishments during the war, affords us the basis for an entrance upon an era of merchant marine development that will enable us to compete successfully against the world.

CHAPTER IX

ARMISTICE NEGOTIATIONS FOR GERMAN TONNAGE

IMMEDIATELY after the signing of the armistice on November 11, 1918, at the instance of President Wilson I left Washington for Paris, sailing on the *Olympic,* to take charge of the shipping negotiations in connection with the Peace Conference.

The terms of the original armistice contained no provision for the surrender of the German merchant fleet. However, with the assembling of the delegates to the Peace Conference in Paris, it soon became apparent that if any substantial quantity of food was to be sent to the relief of Germany, that country would have to make available to the Allies the German mercantile tonnage. There were also the big German passenger liners, like the *Imperator,* to be obtained in order to accelerate the repatriation of American troops, which their fathers and mothers were looking to the United States Shipping Board to accomplish as quickly as possible.

This question was considered many times by the Supreme War Council as well as by the Allied Food Council. It was clear that there were enough bread-stuffs, fats, and cereals to supply the world, but that there was a lack of tonnage. Various means of obtaining the German merchant-ships were considered by the Supreme War Council, which finally reached a conclusion at its meeting at the Quai d'Orsay on January 13, 1919. The French delegates at this meeting thought that the simplest and most expeditious method of securing the German merchant tonnage that remained in German and neutral ports was to insert into the armistice a new clause requiring delivery. President Wilson, supported by Lloyd George, Mr. Balfour, and Lord Reading, felt that this procedure should be avoided, and that the ships might be obtained by bargaining. Accordingly, it was determined that a group of Allied civilian delegates should accompany Marshal Foch on the 15th of January, when he entered into negotiations with the German delegates relative to an extension of the armistice, and that these civilian delegates should be instructed to arrive at an agreement with German civilian delegates along the lines of supplying food to Germany in exchange for the use of her merchant tonnage.

On the afternoon of Tuesday, January 14, 1919, a special train left Paris, carrying American, English, French, and Italian representatives to the ancient city of Treves in southern Germany, where it was expected to join Marshal Foch and Admiral Browning, who represented Admiral Weymiss in these armistice negotiations. This was the first time that civilian delegates of the United States, or of any other country, had participated in any discussion relative to an extension of the armistice, and represented the first civilian body to enter Germany after the armistice.

Our special train was perfectly appointed, the members of the party traveling as guests of the French government. The delegates may be grouped under three heads: shipping, food, and finance. The party included Admiral W. S. Benson, Naval Adviser to the President; Howard Heinz, representing the United States Food Administration; Sir John Beale, of the Allied Supreme

Council of Supply and Relief; John Anderson, representing the British Ministry of Shipping; Norman Davis, of the United States Treasury; and John M. Keynes, representing the British Treasury. I had been asked to serve as the chairman of the combined Shipping and Food Delegations.

After spending the evening in preliminary discussion among ourselves as to the best method of procedure, and the best trade that, unsupported by military power, we might be able to make with the Germans, we passed a comfortable night in our vestibuled train, arriving at Treves the next morning. Immediately upon arrival our train was put on the same siding adjacent to the special train of nine cars used by Marshal Foch. The Marshal's train was composed of sleeping-cars and cars fitted up as work-rooms and conference-rooms. The interior of the Marshal's car itself was arranged like a small office. The furnishings were plain, but substantial and comfortable. Telephones were installed in practically all of the cars, so that connection could be had with the outside whenever the Marshal halted his train.

The German delegates to renew the armistice were not expected until ten o'clock, and, pending their arrival, Marshal Foch sat at his desk in the corner of his car, smoking a short stub pipe and studying papers with his secretary or conversing with Admiral Browning, the British representative. The military idol of the day was dressed in a blue uniform, with three rows of *rubans* representing his medals, and with the seven gold stars indicating his rank covering his sleeve up to the elbow. In our conferences with the Marshal I was impressed by his dynamic force and dominating personality. General

Weygand, the Marshal's Chief of Staff, and General Dysticker were constantly in attendance.

Shortly after ten o'clock two big Cadillac cars belonging to the United States army, with the curtains drawn, dashed up to the platform alongside the train. These cars carried the four German delegates, arrived to learn the fate of Germany as affected by the renewal of the armistice. On this occasion they were: Mathias Erzberger, Count von Obendorff, General von Winterfeldt, representing the German army, and Captain Vanselow, representing the navy. They looked somewhat crestfallen and dejected — in fact, all of the German delegates that I talked with seemed to be depressed and to have lost much of their obtrusiveness and fight. The aide-de-camp of Marshal Foch met the German delegates as they alighted, saluted them formally, and without a word conducted them to the car Marshal Foch used for a conference-room. In the center of this room which closely resembled a small directors' room was a large table with chairs around it. Entering the conference car, the German delegates took off their coats, while the officers removed their swords, and all arranged themselves standing along the side of the car.

In a few minutes Marshal Foch and Admiral Browning came in from the Marshal's adjoining private car. Foch bowed coldly, and the delegates, rooted against one side of the car, saluted stiffly. There was not a handshake nor any sign of warmth whatever in the greeting. The meeting was icily formal. Foch bowed again, and indicated the seats the German delegates were to occupy. They sat down on one side of the table, with Admiral Browning opposite. Foch stood at the end of the table, conducting the meeting, while a secretary sat opposite him. Soon Foch was dramatically gesturing to the delegates, laying down the law, while the Germans listened sullenly, in silence.

At these extensions of the armistice a paper was laid before each German delegate on which were two parallel columns — one indicating infractions of the armistice and the other, the new conditions. There might be discussion over the new terms, but in the end they were always accepted.

It had been arranged that the discussions between the civilian delegates should proceed concurrently with those taking place between Marshal Foch and the German Armistice Commission. The Marshal had allowed us twenty-four hours to conclude our arrangement. We were considerably delayed at the outset, owing to the non-arrival of some of the German shipping and food delegates from Berlin. This enabled us, however, to spend several hours walking through the town of Treves, and purchasing paper cloth, wooden shoes, mediocre candy made without butter, milk, or chocolate, as well as various kinds of tea and coffee *Ersatz*. Our party started a run on German Iron Crosses, buying out virtually the entire supply of Treves. The price of Iron Crosses, of the first class, was sixteen marks; of the second class, twelve and one half marks. They were new — had never been worn, of course — but were exactly like those worn by many of the German delegates with whom we later negotiated.

Late in the afternoon of Wednesday, January 15, we held our first formal meeting with the German delegates in the Reichshof Hotel, opposite the railroad station. The German delegation included some prominent names: Philip Heineken, director-general of the North German

Lloyd, and Dr. F. Cuno, president of the Hamburg-American Lines, representing the German shipping interests; Herr von Braun, Under-Secretary of State, representing the Imperial Food Department; Herr Geheimrat Seeliger, of the Foreign Office; Dr. Melchior and Dr. Ratjen, representing the German Treasury. Both German and English were spoken at the beginning of these conferences; but, disturbed by apparent inaccuracies of translation, the German shipping delegates especially, soon reverted to English exclusively. Most of the shipping men had spent years in New York and London.

I explained to the German delegation that the purpose of our meeting was to consider the questions of shipping and relief, and that we wished to discuss this matter at the beginning as a non-military question. Provided the German merchant tonnage was made available to the Allies and satisfactory arrangements made regarding payment, the Allies would arrange to send a substantial quantity of food to Germany. I explained the time limit placed by Marshal Foch on our negotiations, and emphasized our desire to conclude a civilian arrangement rather than resort to the insertion into the new armistice of any clauses relating to an exchange of shipping for food. I asked the German delegates if they thought we could come to an agreement, to which they replied in the affirmative provided the Allies were prepared to meet certain conditions.

However, our negotiations dragged, and it seemed as if it would be impossible to conclude an agreement within the brief time allotted. However, I gathered the impression that, in order to protect themselves from public opinion at home, the Germans preferred to have a clause compelling the surrender of their ships inserted in the armistice. In this way it would appear that they had been forced to yield their merchant marine to obtain food for the starving population of Germany.

Nevertheless, feeling that there was some justice in the German contention that insufficient time had been allowed them really to consider the questions involved, and feeling also that if the negotiations could be skilfully continued a little longer an agreement might be negotiated, several of us proceeded to the private car of Marshal Foch. I outlined the situation to him. He listened attentively, punctuating my discourse with terse interjections. However, he was firm, stating that the armistice would expire at 5 A. M. on the morning of Friday, January 17, and that any civilian agreement must be concluded before 8 P. M. of the present day of Thursday, January 16. He volunteered the opinion that if clauses relating to shipping and food were to be put into the extended armistice the shipping would be secured; otherwise the Allies would be sure of nothing.

His attitude was that of a military man, unbending. He was accustomed to view matters from a military standpoint. We were not always sure of the sympathetic attitude of the Marshal. Until now he had been absolutely supreme not only in military affairs but also as regards financial and economic questions arising between the Allies and Germany. He doubtless felt that a mistake had been made in entrusting any of these negotiations to civilian delegates. Furthermore, the authorities in France did not favor the withdrawal of American troops, which would be accelerated in case the German passenger liners were obtained. These authorities believed that 1,000,000 American soldiers should be kept in France for two years following the armistice. Nevertheless, the Marshal declared that he would put into the armistice clauses relating to the exchange of food for shipping, if I desired.

Failing to secure any extension of time, another meeting was called with the German delegates, and the need for expedition emphasized. The Germans were still captious. They wished an agreement that their ships would run under the German flag out of German ports and with German crews. They wanted representation on the Allied Maritime Transport Council in London, participating in the management and control of the German ships. It being impossible to argue out all of these questions, the meeting adjourned, and we proceeded again to meet Marshal Foch and to discuss the clauses to be inserted into the armistice. After considerable discussion and criticism from the Marshal, he agreed to certain clauses of which the translation follows, it being understood between himself and Erzberger of the German Armistice Commission that further negotiations might take place on questions of detail after his departure.

TRANSLATION OF CLAUSES INSERTED IN THE ARMISTICE

of January 16, 1919

In order to assure the revictualing as to food of Germany and the rest of Europe, the German government will take all necessary measures to put for the period of the armistice the entire German commercial fleet under the control and under the flags of the Allied Powers and of the United States, assisted by a German delegate.

This agreement does not prejudice in any manner the final disposition of these ships. The Allies and the United States will effect, if they deem it necessary, the partial or total replacement of the crews, which thus released will be repatriated to Germany.

For the use of these ships an appropriate remuneration will be paid which will be determined by the Allied governments.

All the details as well as the exceptions to be determined as concerns the different categories of ships will be regulated by a special convention, which shall be concluded immediately.

Marshal Foch and Erzberger having affixed their signatures to the armistice at eight o'clock, the Marshal turned to the German delegate, saying: "Please instruct Captain Vanselow of your Commission to continue these negotiations with Mr. Hurley to-morrow morning at ten o'clock."

It was now a question of concluding as speedily as possible a definite working agreement along the lines of the clauses inserted in the armistice. A midnight meeting of the Allied and German delegates was called at the Reichshof Hotel to discuss the proposed agreement.

In opening the discussion, I explained what had occurred, and the insistence of Marshal Foch that no more time could be allowed for these civilian conferences; adding that the German delegates, from their own experience, could easily appreciate how difficult it was to argue with these military men, at which allusion a comprehending smile spread around the room and several "*Ja, Ja's*" were heard from the Hamburg shipping representatives.

Anxious as the Allies were for the German merchant-ships both to relieve the shortage of cargo tonnage and also to assist in the repatriation of troops, the Germans were even more anxious for food. Herr von Braun, Under-Secretary of State for Food, painted a pitiful picture of conditions in Germany: eight hundred people dying daily of starvation, and Bolshevism greatly feared. He stated that 75,000 tons of fats, such as bacon, ribs, lard, butter, and pork, were urgently needed; that, if thousands of German women and babies were to be saved, 10,000 tons of condensed milk must be shipped at once to Germany. I was touched by this picture of the suffering of innocent women and children. The need of hospital supplies was also urgent, and he enumerated items like the following, of which there was a total dearth in Germany: 100,000 rubber gloves; 18,000 air-cushions; 500,000 nipples; 10,000 water-beds; 100,000 kilograms of vulcanite (for artificial teeth); 50,000 tubes of catgut (for operations).

The question of payment for the food that Germany desired of the Allies furnished a fruitful subject for discussion. Germany was willing to supply the ships, and the Allies the food. France, however, objected to German gold or securities going out of the country, and thereby reducing the amount available for the Reparations Fund; and the French representatives urged that Germany get to work and pay in potash or coal, for which France and Italy would issue appropriate credits. Inasmuch, however, as practically all of the food must come from the United States, our financial delegates had a deciding voice in the matter.

The Germans were insistent upon the principle of utilization of the German crews. They stated that the labor situation at home was critical, and that for the German ships to be turned over to the Allies without German crews would be dangerous not only from a sentimental but from a practical standpoint, in the unemployment it would cause among German seamen. In spite of continued pressure to gain this point, the Allies would not go further than to permit German crews to take the German ships to the ports of delivery in England and France, from which such crews would be repatriated to Germany. The matter of pay for the German tonnage was discussed at length, and when it was revealed to the Germans that the highest rate they would receive would be the lowest rate paid by Great Britain or its Allies to any native or neutral ship-owners, there were expressions of pain and despair from the leading German ship-owners present. They could not reconcile "blue book" rates and any profit to themselves, although it was repeatedly pointed out that no money would pass to Germany for the use of the merchant tonnage, such payments being merely credited to the German account in the Reparations Fund.

Our final meeting occurred on the morning of January 17, 1919, when the objections previously raised by the Germans were raised again and were similarly denied. The question of permitting German crews to continue on their ships was again pressed, and it seemed incomprehensible to the German delegates why the Allies would not permit them to remain. In fact, Captain Vanselow, of the German Armistice Commission, turned to his German stenographer and insisted that she emphasize the fact that the Allies refused this request "*ohne gründe*"— that is, without reasons.

An amusing incident occurred at this last meeting. The leader of the German delegation stated that he thought he ought in fairness to say that negotiations had been entered into on the part of some of the leading German shipping lines, which contemplated the use of certain German passenger liners, including the *Imperator*, for the return of American troops to the United

States. He wanted to make it plain that these ships might have to be excluded from any arrangement concluded at this time. He referred to a letter written by Herr Heineken, of the North German Lloyd, to General Pershing, quoting low rates on the big German passenger liners if used to repatriate American troops. A copy of this letter was handed to John Anderson, the British shipping delegate, who was mistaken for an American, since the British would naturally be the last people that the Germans would care to inform of a confidential arrangement they hoped to negotiate with the Americans.

Eventually all changes were agreed upon by both sides, and the agreement was finally signed at 12:15 P. M. on January 17, 1919, in the salon car kindly assigned to me by the French government; and ten minutes later our special train set out for Paris. Our relations with the German delegates throughout the conference had been cordial and friendly; and just before we left Captain Vanselow remarked that the entire German delegation was extremely pleased by our attitude toward them and the treatment accorded them.

The agreement was signed by Captain Vanselow on behalf of the German government, and by representatives of the shipping, food, and finance sections for the Associated Governments; and there was thus concluded the first civilian agreement entered into with Germany by the nationals of any belligerent nation since the outbreak of the war in 1914. The closing paragraph of this now historical document, including the signatures affixed thereto, was as follows:

SIGNED AT TREVES this 17th day of January, 1919, by the Delegates of the Associated Governments:
EDWARD N. HURLEY

L. P. SHELDON
HOWARD HEINZ
JOHN BEALE
JOHN ANDERSON
J. A. SALTER
T. M. CHARPENTIER
PIERRE MAY
R. LAURENT VIBERT
B. ATTOLICO

SIGNED AT TREVES this 17th day of January, 1919, by the Delegate of the German Government:

VANSELOW,
Kapitän zu See und Mitglied der
Waffenstillstands Kommission.

The main features of this agreement were as follows:

(a) Germany agreed to place her entire merchant fleet, including all passenger ships and all cargo vessels over 1,500 tons, and one half of her ships between 500 and 1,500 tons, wherever located, in home or neutral ports, immediately at the disposal of the Associated Governments in the ports and under the conditions prescribed by them.

(b) The German ships were to put to sea under an Allied flag or flags, and with German officers and crews, which, however, might be released wholly or in part by the Associated Governments and repatriated to Germany.

(c) In return for the German merchant tonnage, the Associated Governments agreed to release for importation into Germany 200,000 tons of bread-stuffs and cereals and 75,000 tons of pork products, a portion of which might be replaced by condensed milk, the question of any further supplies of food to be referred to the Supreme War Council for decision.

(d) Payment for the food supplied to be arranged by the German government in a manner approved by the Associated Governments, and credit to be allowed the German government for the ships turned over to the Allies.

Included in the merchant tonnage thus obtained were many fine passenger ships, which later carried back to the United States thousands of American soldiers. The largest of these ships were as follows: *Imperator, Cape Finisterre, Cleveland, Patricia, Königin Luise, Prinz Friedrich Wilhelm, Zeppelin, Pretoria, Graf Waldersee.*

Although the bulk of the passenger ships, amounting to some 200,000 gross tons, was originally allocated to the United States, a large tonnage of cargo ships was secured which was placed under the control of our Allies and which served materially to lighten the load of the world's shipping and made possible the movement of relief supplies into Germany. A total of 1,824,828 gross tons of cargo ships have been surrendered to date in accordance with armistice arrangements.

CHAPTER X

THE NEW MERCHANT MARINE

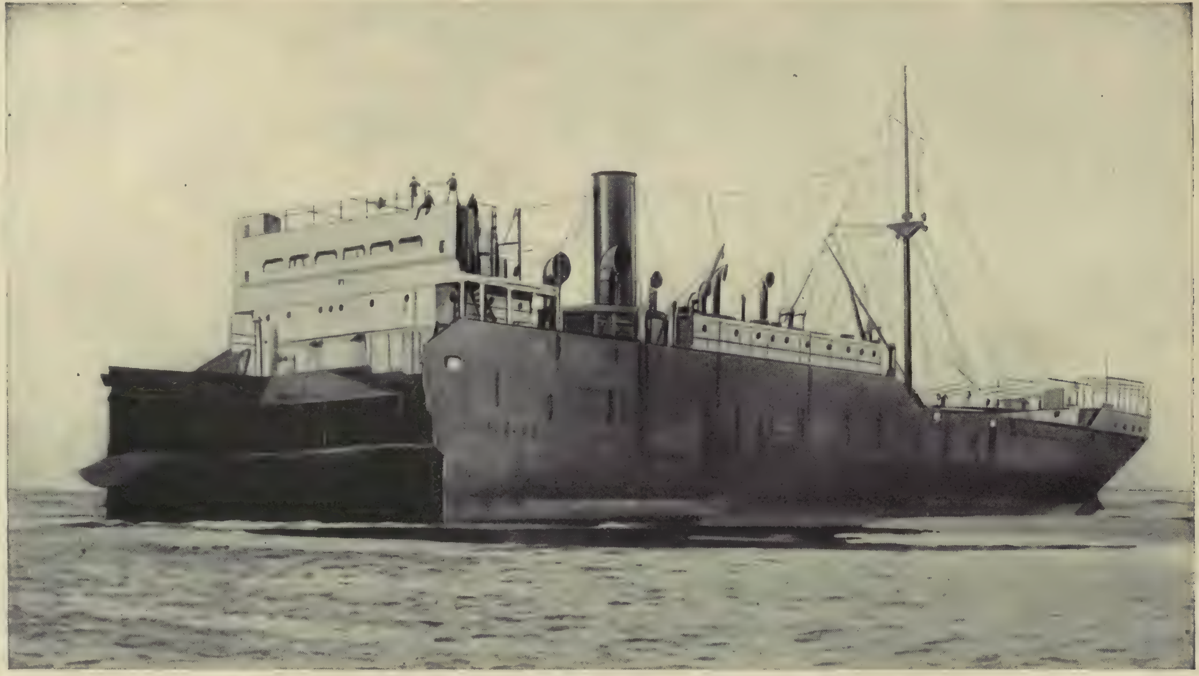
DURING the fifty-nine years that have elapsed since the destruction of the American merchant marine, the value of our foreign commerce has grown from slightly less than half a billion to ten billion dollars a year, including war supplies. At least 90 per cent. of it has been carried in foreign ships, and an even greater percentage has been foreign negotiated and foreign financed. In other words, since we lost our ships, the direction and control of our commercial relations with the rest of the world, especially as regards transportation, have passed almost completely out of our hands.

The significance of these facts is not to be measured by the billions that have been paid to foreign shipowners in ocean freights; by the tens of billions that our trade has yielded to foreign merchants and bankers; nor yet by the much greater probable value of the trade that might have been ours but has been won by others. Of much greater importance is our consequent loss of the power to develop our industries symmetrically, and our inability properly to conserve our national resources. We have not been exporting the things we should export, but rather the things that the commercial interests of other nations have been willing that we should export. As a rule, these favored articles have not been the ones for which we have the most abundant supply of materials and the largest productive capacity. More often they have been raw materials, and in many instances they have been materials that our national interests demanded that we should conserve.

Every one of the hundred and ten million inhabitants of the United States has a direct and vital interest in seeing our commerce flow freely to all the ports of the world. Farmer, stock-broker, manufacturer, merchant, miner, and mechanic, all should realize the direct bearing upon their individual welfare, and upon the welfare of their children and their children's children, of either national commercial dependence upon the pleasure of others, or of national commercial independence. A nation without ships is handicapped in the same way as a merchandising establishment without its own delivery system. American commercial independence is thus made synonymous with the existence of American ships.

The Great War has left in our hands the nucleus of a large merchant fleet with which to reëstablish our flag upon the seas. It consists of about 2,311 vessels aggregating some 13,600,000 dead-weight tons of which 1,689 are steel vessels of 11,559,000 dead-weight tons; 592 are wooden vessels of 1,896,000 dead-weight tons; 18 are composite vessels of 63,000 dead-weight tons and 12 are concrete vessels of 73,000 tons. There is nothing elaborate about it, for it was built in an emergency for the grim purposes of war. It contains no ocean greyhounds; in fact, only 26 of the ships were designed to carry passengers. There are a few tankers, colliers, and other special types; but, in the main, its units are carriers of bulk and general cargo, capable of turning up between 9½ and 11 knots an hour. They are good, strong vessels of better material, equipment, and workmanship than the old cargo vessels of Europe. They may be expected to withstand correspondingly harder usage, and to render good service throughout correspondingly longer lives. The period in which the world stands on the threshold of the most inscrutable future ever faced by mankind is not a time when men of vision and determination need the best balanced modern equipment to break into any business. The material needs of almost all nations are large and urgent. Ours is the market best stocked to fill those needs. For the time being, at least, our emergency ships are adequate to perform a large part of the carrying task.

From what has been said, it should be clear that the ultimate object of our efforts to reëstablish the American flag upon the ocean must be the establishment and development of permanent American commerce throughout the world. Therefore it would be a mistake to regard the new merchant marine exclusively, or even primarily, as a new American industry. Such a conception would tend to defeat our main object by setting up a new interest separate and distinct from every other American interest — an interest that could no more command the national attention and quicken the national pride than the dye-stuffs industry, the munitions industry, or any other industry that has nothing but spectacular aspects to commend it to the public. At this time, when the fullest coöperation and absolute unity of purpose are essential to win for our people their fair share of the world's commerce, we must regard our merchant marine as an integral part and a necessary instrumentality of American industry and commerce as a whole. If it functions properly in this capacity, its own prosperity will be assured.



AFTER PART OF MINED S. S. "LIBERTY GLO"

Drifted ten miles and beached at Ameland Island. Forward part of ship was blown up and sunk.

It is interesting to conjecture what course probably would be pursued in present circumstances by a Derby, Grey, Peabody, or some of the other bold American merchants of the eighteenth century — especially those who used to take chances in the fickle East India trade. The idea of combining merchandising with the operation of ships (except in the case of huge manufacturing corporations which have regular markets and wish to effect economical distribution) has long become obsolete. Nevertheless, there is a question whether present extraordinary conditions may or may not suggest that the practice might profitably be revived, modernized, and developed.

An export and import house, for instance, unquestionably would be in a very strong position if it possessed one or more ocean carriers, and could promise definite shipments. Moreover, the net profit earned by an average 6,000-ton freighter, carrying a cargo of machinery to England and returning in ballast, runs about $12,500, the round voyage consuming 42 days. Carrying cargo both ways, the same vessel can earn $85,000 a voyage. Taken in connection with the merchandising profit, this item presents a very interesting consideration — especially since it introduces possibilities for competitive leeway not open to the merchant who is obliged to make his contracts with the payment of a rigidly fixed ocean freight in view. Then, too, when the tax collector comes around, there may be some advantage arising out of the ratio of income to invested capital, if the rather large cost of operating steamships could be charged up as an expense of the enterprise as a whole.

Of course, the merchant who undertook to operate on such a scale would have to possess a large business and excellent foreign marketing connections. He would have to be able to keep his ships moving; for the capital charge of each 6,000-ton vessel will run at about $600 a day, to say nothing of the lesser items which, together with the capital charge, constitute the ship's "overhead." No export and import firm or corporation whose members or officers confine their activities to scanning the trade reports, while they sit in the office waiting for orders to come in, can even think of undertaking operations of this kind, irrespective of how much capital it can command. Nevertheless, it is aggressive merchants of a type capable of doing big things that the country needs and must develop if we are to win and hold our proper place among commercial and maritime nations.

Other variations and adaptations of the practices of our successful merchandising forefathers also suggest themselves. The ownership of vessels by corporations formed among manufacturers, agriculturists, and merchants having common interests in the same foreign countries seems to commend itself, for several practical reasons. The vessels would settle at once into trade routes where plenty of business awaited them, which is a very important consideration; also, the accuracy with which the prospective volume of business could be predetermined would automatically impose safe limits upon the size of the individual fleets. Under such a system, it is unlikely that any organization would undertake to operate more ships than the number for which it knew it could find continuous employment. This is a safeguard against wasteful competition between ships under the American flag, and it is also a strong influence tending to keep American fleets within the size limits that permit maximum operating efficiency.

The first fifteen or twenty vessels sold by the Shipping Board in the late spring and early summer of 1919 passed into the hands of trading companies with definite cargo-supplying connections organized along the lines here indicated. With one easily explained exception, their operations have been attended by conspicuous success, although every one of them, without much preparation, plunged at once into the highly competitive trans-Atlantic trade. Of course, these companies do not confine their operations to the handling of their own freights.

The services offered to American exporters by these few new companies are similar to the services rendered the United States Steel Corporation by its ship-operating and foreign selling subsidiary, the United States Steel Products Company. This great American corporation does the largest foreign business accredited to any single company on earth. During the ten normal years in which the Steel Products Company handled its export business before the outbreak of the World War, the Steel Corporation's foreign sales increased 900 per cent., from 290,000 tons to 2,246,000 tons, and the cost of exporting decreased from between 7 and 11 per cent. to 8/10 of 1 per cent. of the invoice value of the exported products.

Inasmuch as this service originated about 1903, when it was supposed that shipping enterprises under the American flag were foredoomed, it is interesting to recall some of the achievements that Mr. James A. Farrell, then in charge of the foreign selling organization, proved were possible to American enterprise and determination. At that time such an undertaking was hedged around with barriers that do not exist to-day. In order to reach the fast developing region of Vancouver, British Columbia, the Steel Corporation was obliged to overcome the prohibitive railroad rate of $18 from Pittsburgh, which compared with an ocean rate of $7 from Liverpool enjoyed by the British steel companies. And to this disadvantage there was the Canadian preferential tariff of 33⅓ per cent. in favor of England to be added.

The problem was solved by operating a fleet of four, and later six, vessels from New York around South America to Vancouver; but, in order to prevent the vessels from being as expensive as the railroad and tariff obstacles, it was necessary to operate them in general commerce quite independent of the business of the Steel Corporation. At Vancouver the steamers loaded lumber or coal for the Gulf of California. There they loaded copper matte for Dunkirk, France. At Dunkirk they loaded chalk for New York. Having earned their way back to New York, they were ready to carry more steel to Vancouver; and so the circle was repeated. The effort made it necessary to cover half the habitable globe; but the American object of selling large quantities of American steel in the Vancouver market was accomplished.

Another but less direct system of operating steamships under the influence of the interests they are to serve, is through widespread popular holdings of steamship stock. Inasmuch as the American merchant marine probably will be capitalized at somewhere in the neighborhood of $2,500,000,000 before it attains its full growth, the widespread participation of the public in its fortunes seems a foregone conclusion. Then the views of every interest in the country will be reflected by the votes of the shareholders and the policies of the steamship directorates. Farm, factory, bank, and merchant will be coöperating to the common end in another way, but probably with as good effect as under the other suggested systems of operation in the general interest of commerce.

It has been argued that such cosmopolitan composition of steamship operating companies might lead to more or less frequent sacrifices of steamship profits in favor of promoting foreign trade schemes. However, I think this argument is answered by the fact that the officers of the organization would have steamship responsibilities to which they would have to give weighty consideration, even if it were not for the circumstance that the interests of the steamship business are so inextricably interwoven with the expansion of foreign trade that any such concession likely to be made would be more apt to bring gain than loss to the steamship company involved.

No matter what systems of operating the merchant marine our people may ultimately favor and put in effect, we may as well make up our minds in the beginning to accept and make the best of three conditions:

First: We are not going to have trained steamship men of long experience in charge of the activities of all our ships. The country simply does not possess them. But, even so, I am not sure we shall suffer seriously on this account, because for the present our merchant marine problem is as much a merchandising problem as anything else. Moreover, the experience of the war period, and the year of government operation that followed the signing of the armistice, demonstrated that energetic business men familiar with the principles of international trade develop into good ship operators in a remarkably short time. Under present conditions it is not more difficult for a ship to find cargo than to handle it, and the prospect of the return of conditions under which a shipowner lives as much by his reputation and connections as by the quality of the service he is prepared to render, is far from immediate. If such conditions ever do return, undoubtedly our new shipowners will have time to prepare for them. In two years we trained and otherwise mustered, contrary to all precedents and expectation, a sufficient number of American masters, mates, and engineers to take more than eight tenths of our ship tonnage to sea. We shall do the same thing with new officers to direct the affairs of the steamship companies, and we shall be wise if we select them from the most far-seeing and versatile types of business men the country produces.

Second: We must realize that the foreign field is well covered by European foreign selling syndicates, and that before we can make one inch of progress in establishing and developing markets for standard goods in competitive fields, we shall have to possess a selling organization of our own. The European foreign selling syndicate's strength is great in a few countries, but it is by no means invulnerable. It is an artificial and more or less involuntary coördination of manufacturing, banking, ocean transportation, and merchandising, under government supervision and enjoying government support. However, from their very nature, these organizations are necessarily full of internal stresses set up by arbitrary restraints of trade and restrictions of individual enterprise imposed from above. The steamship business is held subservient to them chiefly by the weak tether of a government subsidy, with the amount of which the steamship companies are never satisfied.

If, to oppose these artificial organizations, we throw out perfectly natural and whole-heartedly coöperative combinations of producer, merchant, and ship, it is highly probable that we shall make headway. Our bankers have been doing their part in establishing branch institutions abroad for several years, and our merchants so far have hardly given them a chance to show what they can do. But one thing is certain: With a foreign trade aggregating the value of $10,000,000,000, our merchants and our ships will have plenty of business, even if they do not handle more than half of it. In the matter of exports, they enjoy an unquestionable initial advantage arising from the fact that they have the greatest volume of goods to sell.

Every day that passes diminishes the weight of this advantage, for our European competitors are losing no time in restoring their industries to the export basis. We should be culpably short-sighted if we permitted their foreign selling syndicates to reëstablish themselves in foreign markets by bringing in great quantities of our goods and selling them against the day when they will be able to substitute their own goods, leaving to us only such fraction of the business as they may see fit to let us have. This is what will surely happen unless American merchants and American ships begin coöperating at once to prevent it.

Third: We must awake to the fact that even the operation of ships by the government does not furnish the high degree of coöperation between producer, merchant, and ship that is necessary to attain our national object.

A year of such operation has already failed to establish substantial promise of sustained service and permanent trade connections for particular American firms in particular foreign markets. This is necessarily so because, rightly or wrongly, in view of the present shortage of ships, a government bureau cannot possibly undertake to champion the cause of any particular interest, or group of interests, to the extent that is absolutely necessary in order to give to those interests the full and sustained service that would place them on parity with their European competitors in the matter of steamship service. However, had the ships been owned and operated in a manner that would admit of thorough and persistent coöperation between producer, merchant, and carrier, it is probable that many of the most enterprising of these concerns already would be so firmly intrenched in the foreign markets of their choice that they could successfully contest the field with the strongest artificial selling syndicate any competitor is likely to send against them.

The ocean carrying done by the great fleet of cargo vessels owned and controlled by the United States government has consisted, so far, chiefly of supplying food, raw materials, and heavy machinery to Europe. Nevertheless, a very creditable amount of general export business has been developed, in a more or less organized way, between American ports and the ports of other countries that are not yet systematically served by the well balanced freight and passenger fleets which Europe withdrew at the outbreak of the Great War. American-flag cargo service, unsupported by fast freight or passenger service, is now established in forty-one definite trade routes, chiefly to Europe and South America. The vessels plying these routes may be sold to American citizens by the government at any time, but the real opportunity of the American people to go into the steamship business on equal terms with competitive European lines is scheduled to begin in 1920.

At that time the thirty ex-German passenger ships and the twenty-six passenger vessels constructed by the Shipping Board will begin to be available for balancing, or rounding out, the different fleets. By the first of January, 1921, for the first time in fifty-five years, the American flag, flying over the taffrails of American ships, will cruise virtually all the major trade routes of the civilized world. It will be only a nuclear service at first, but it will be one that can be expanded and intensified as rapidly as American enterprise elects to apply itself to the task.

The fast liner service that can be established with these vessels will include regular sailings from United States ports to Southampton and Cherbourg, three 23-knot ships; to Hamburg, four 12½-knot ships; to Antwerp via Queenstown, three 17-knot ships; to Baltic ports, three 13-knot ships; to the Mediterranean ports of France and Italy, four 12½-knot ships; to Greece, Turkey, and Rumania, three 11-knot ships; to Spain, Portugal, and Bordeaux, two 11-knot ships; to Brazil and Argentina, five 15-knot ships; to Colombia, Venezuela, and Para, two 12-knot ships; to the west coast of Africa, two 13-knot ships; to Cape Town, three 13-knot ships; to the west coast of South America, two 13-knot ships; to the Philippines, China, and Japan, four 17-knot ships; to the Philippines, Straits Settlements, and India, four 17-knot ships; to Vladivostok, China, and Japan, four 17-knot ships.

In order to link up the activities of this liner nucleus with the carrying power of the 2,300 cargo vessels in the present government construction program, or, as it is called, "to balance the fleet," there will need to be built by private interests in the next two or three years about two hundred additional oil-tankers, fast passenger-and-cargo liners, colliers, and motor-ships. None of these vessels should be rated at less than twelve-knot cruising speed, and they should vary in carrying capacity from 10,000 to 15,000 dead-weight tons. When we have this fleet in commission, there will be no question about our merchants having adequate American-flag service to get and hold for them their fair share of the world's trade, and there will be no question about American citizens having the equipment to enable them to exercise control over American overseas commerce.

CHAPTER XI

AMERICAN COMMERCE IN THE WESTERN HEMISPHERE

JUST as all overseas trade problems fall back upon the question of ships, so all ship problems refer back to the fundamental question of overseas trade. In order to learn America's need for ships, one must know America's need for the goods of other countries and other countries' needs for the goods of America. During the war, when all the ships the Allies and the United States could command were employed in their common cause, it was found necessary to operate about 1,400 vessels, aggregating some 4,500,000 dead-weight tons, in the essential commercial trade of the United States.

Some of the materials brought into the United States in these vessels were used in the manufacture of munitions of war, but most of them were necessary to sustain the life of our people. Except in the trans-Atlantic trade, where large quantities of food, clothing, and miscellaneous necessities were carried eastward, government embargoes confined the volume of exports carried by this essential commercial fleet within narrow limits. Therefore, the steamship activity represented by the operation of the fleet can be regarded as reflecting our minimum needs from overseas, although it shows nothing of other countries' needs from us.

One month before the signing of the armistice, the essential commercial trade of the United States with

Europe was employing 184 vessels of 1,035,940 dead-weight tons; with Africa, 95 vessels of 81,265 dead-weight tons; with Australia, 187 vessels of 223,190 dead-weight tons; with Asia and the Indies, 132 vessels of 454,350 dead-weight tons; with South America, 478 vessels of 1,400,865 dead-weight tons; and with the West Indies and the islands of the Caribbean Sea, 295 vessels of 707,240 dead-weight tons. Of course, the figures for the European trade indicate nothing of permanent value, but the figures of the other trades give a good idea of the dependence of the United States upon the different parts of the world for supplies necessary to sustain the national life. On this account they would seem to indicate the markets in which our people should seek first to establish and develop permanent trade, and the ends toward which our ships should be designed and our mercantile fleets organized.

Taking these different regions seriatim in order of their apparent importance, we come first to the eastern coast of South America. Our people purchase from this region such materials as cacao, rubber, grains, flaxseed, quebracho extract, dry hides, wool, meat and dairy products, castor beans, Brazil nuts, vegetable wax, and monazite sand. Our actual and likely exports to the same markets are: textiles, clothing, boots and shoes, machinery, hardware, steel, fruits, package and canned food-stuffs, chemicals, drugs, medicines, miscellaneous manufactured articles, and notions.

Before the war the Lamport & Holt Line (British) offered the only direct high-class passenger and package freight service between the United States and the ports of the east coast of South America. The Lloyd's Brazileiro gave service as far south as Santos, and the small steamers of the Booth Line made monthly sailings to the ports of north and middle Brazil. The largest Lamport & Holt vessels in this service were the 15-knot *Vauban, Vestris,* and *Vandyck,* of 10,000 gross tons each. They sailed fortnightly, and made Buenos Aires in about twenty-four days. None of these vessels undertook to carry any but the highest grade of freight, all bulk cargo being lifted by the freighters that touched American ports while making triangular voyages of which the other two vertices were in Europe and South America respectively.

Passenger service between the east coast of South America and Europe was, and still is, conducted on a much more elaborate basis. The liners operated by the Royal Mail, the Pacific Steam Navigation Company, and the Compagnie de Navigation Sud Atlantique (also formerly by the Hamburg-South American Line) included ships of from 15,000 to 19,000 gross tons, with speeds varying from 15 to 17 knots an hour. Italian, Spanish, Austrian, and Dutch lines also had sizable vessels in the South American run. Although suspended almost entirely during the war, the services of these European companies have now been restored, and it is planned that some of them will be strengthened as soon as the condition of the ship-building industry in Europe permits the necessary construction work to be undertaken. For the time being, of course, the strong German influence of other days is absent.

Although the bulk of the ship tonnage engaged in trade with the east coast of South America is British, whether it sails out of European ports or American ports, the superiority of the service between Europe and South America over that between the United States and

South America is very marked. Many of the steamers in our South American service are small and old. The service as a whole is inadequate. We cannot expect the merchants of South America to visit the United States freely, when to do so means personal discomfort. Neither can we hope to hold the trade we have gained during the war with inferior transportation and inadequate mail service.

These questions are very pertinent ones, because the trade we have gained in this part of South America is very considerable, and very largely on a sound commercial basis as distinguished from "war business." Throughout the entire war period a severe shortage of ships continually imposed a physical limit upon the growth of our exchange of commodities with South America; but, notwithstanding this, our participation in the total foreign commerce of Argentina increased from 10 per cent. in 1913 to 32 per cent. in 1917; of Brazil, from 25 per cent. to 40 per cent.; and of Uruguay, from 8 per cent. to 28 per cent. In January, 1919, American merchandise valued at $39,000,000 went to Brazil, Argentina, Uruguay, and Paraguay, recording an increase of 190 per cent. over the same month in the preceding year, when the war was in progress and most exports were under embargo.

If the commerce of the United States with the east coast of South America is to be conducted on as favorable a basis as the commerce of Europe with that region is now being conducted, there is much to be accomplished in establishing adequate steamship service. The service most urgently needed is such as would be offered by combined cargo and passenger liners of about 18,000 gross tons, capable of carrying 12,000 dead-weight tons below decks. These vessels should accommodate about 300 first-class passengers, 175 to 200 second-class passengers, and a small number of steerage passengers. They should be fitted with every modern comfort and convenience. At a speed of at least 18 knots, they would make Buenos Aires from New York in sixteen days. With seven such vessels it would be possible to maintain a weekly service. When the bulk cargo-carriers now built and owned by the government are backed up with liner service of this sort, the trade between the United States and the east coast of South America will quickly assume and maintain proportions and permanency that will insure profit to both regions. The cost of the new vessels needed will be about $21,000,000, which is 5 per cent. of the value of United States exports to South America in 1919, or one fourth the increase in the value of these exports from 1918 to 1919.

Passing now to the west coast of South America, we find a rugged country from which our principal import is nitrate for fertilizer. However, this is the bulk cargo of the freight steamers with which we are already well supplied. The west coast also furnishes much high-grade freight of the sort that is carried in the combined passenger and cargo liners so necessary to provide for the travel of the business men who develop trade. Many of these materials are in the " essential imports " class, and among them are the vegetable ivory of Ecuador; the cotton, cane-sugar, cinchona bark, copper, and vanadium of Peru; the tin of Bolivia; the coffee of Colombia; and the tungsten, manganese, antimony, copper, wool, dry hides, nuts, and vegetables available at the ports of central and northern Chile. In exchange for such materials, the people of the west coast want such American products as hardware, wire, tools, electrical goods, furniture, iron and steel, naval stores, cordage, drugs and medicines, paper, cotton cloth, clothing, wheat flour, canned food-stuffs, fish, lard, vegetable oils, and miscellaneous manufactures.

The position of the United States in the commerce of the west coast has always been somewhat better than its position in the commerce of the east coast; but the opening of the Panama Canal, together with the events of the war, has raised our importance from a position ranking after England and Germany to first place. In 1913 our industries and merchants had but 16 per cent. of Chile's total foreign trade, and about 25 per cent. of the total of Peru and Ecuador. In 1917 virtually all the trade of these countries was held by the United States, with England second and Germany out of it altogether. Between 1914 and 1918 our imports from this region more than quadrupled in value, while the value of our exports to the same countries increased some 200 per cent.

The geographical advantage gained by the United States through the construction of the Panama Canal is a very great one, provided our people do not permit it to be wasted. Recent extensive investments of American capital in west coast countries, and the cordial relations established during the war, are also factors that should be helpful in maintaining our present important position in the commerce of that region. But it must be recognized that neither England nor Germany will voluntarily remain out of the west coast markets, once they are able to reëstablish their steamship connections and their production for exportation. The British ships are already back on the berth, and in place of the Germans there has appeared a new competitive element in the Japanese advance into South America. This Japanese participation in the trade of the west coast has been well planned and rapidly executed; and it is sustained by an increasingly efficient steamship service.

Before the opening of the Canal the United States was virtually shut out of this region; for there was no steamship service other than a combination of the United Fruit and Panama Railroad steamers on the north of the Isthmus, and the ships of the Compania Sud Americana de Vapores and the Peruvian Line on the South. The service provided by the Grace steamers by way of the Strait of Magellan performed its purpose, but was unsuitable for general patronage. From European ports, however, the vessels of the Pacific Steam Navigation Company (British) and of the Kosmos Line (German) offered frequent and relatively high-class passenger-and-cargo service by way of the Strait of Magellan. The British ships came as far north as Callao, but the Germans sent their vessels as far as Seattle. This German line supplied the only direct steamship service between any part of the United States and the west coast of South America. The Kosmos vessels measured about 7,000 gross tons and were good for about 12 knots. The British vessels were in the 10,000 to 15,000 ton class, with speeds up to 15 knots.

Upon the opening of the Canal, W. R. Grace & Company built five new American-flag ships for service between New York and the west coast of South America. Unfortunately, three of these vessels were commandeered in course of construction and re-designed for troop-carrying purposes. For this reason they were not available at the close of hostilities when the British ships began returning to the west coast berth, and American trade has suffered in consequence. Moreover, the Pacific Steam Navigation Company (British) has under construction for this trade two mail and passenger vessels of 14,000 dead-weight tons each, having accommodations for three classes of passengers, and capable of steaming 15 knots an hour. Since 1916 the Japanese have replaced the former German service between Seattle and west coast ports with the *Anyo Maru,* the *Kiyo Maru,* and the *Seiyo Maru,* 9–13-knot vessels of 6,500–9,200 gross tons, carrying passengers and freight. Their South American ports are Salina Cruz, Panama, Callao, Mollendo, Arica, Iquique, and Valparaiso.

In order to meet the obvious needs of American trade in this part of the world, there should be in operation two lines of passenger-and-cargo steamers under the American flag, one operating out of New Orleans and one out of Seattle. The vessels of the New Orleans line should make Guayaquil, Callao, Mollendo, and Antofagasta en route to Valparaiso. The liners built for this service should be about 12,000 gross tons, capable of carrying 9,000 tons of cargo and of making 18 knots an hour under ordinary conditions of wind and weather. Such vessels would make the run in fifteen days, and six of them would make possible a schedule of regular ten-day sailings. The Seattle service should likewise extend to Valparaiso, and the ports of call should include San Francisco, Callao, Mollendo, Iquique, and Antofagasta. With two vessels of 16 knots speed it would be possible to maintain monthly service, the time to Valparaiso being twenty days. Vessels of 10,000 gross tons, with space for 7,500 tons of cargo, would be adequate for this service. They would also outclass the vessels the Japanese are now operating in the berth.

The north coast of South America, the Windward and Leeward Islands, the West Indies, Central America, and Mexico form a trade region known as Middle America. Both before the war and during the last year of the war, this area took from the United States and furnished to the United States goods of greater volume and value than those taken and furnished by the whole continent of South America. Moreover, with the exception of 1918, when the value of imports from eastern Asia rose to a very high figure, the trade of Middle America was more valuable than that of the whole of Asia. It is, and always has been, our ranking source of essential raw materials.

In 1914 the tonnage of our imports from this region filled 18½ per cent. of the total shipping employed bringing goods into the United States, and in 1918 the figure had risen to 25 per cent. The volumes and values were: 1914, 9,651,800 long tons, $326,727,000; 1918, 11,510,200 long tons, $583,773,000. The volumes and values of our exports to this region in the same years were: 1914, 5,709,600 long tons, $225,545,000; 1918, 6,448,400 long tons, $532,711,000. Our imports from this region are iron ore, sugar, bananas and other fruit, coffee, cocoanuts, cacao, dye-woods, vegetable ivory, rubber, balata, sisal, tobacco, tanning barks, and spices. Our exports to this region were all such articles as we make and sell in our home market, except heavy clothing. Among them manufactured goods of all kinds hold high rank, and such items as wheat flour, dried fish and other prepared foods, and coal are important.

This important region has always been fairly well served by cargo-carriers, and more American-flag ships are employed there than in any other international trade in the world. Since the opening of the Panama Canal, however, it has been evident that all the old steamship systems are going to prove inadequate, and that a trade carried on chiefly by fast cargo liners with high-class passenger accommodations is to be the order of the future. The West Indies proper are now well served by the New York and Cuba Mail (Ward Line) and the New York and Porto Rico Steamship Company, together with such freighters as are needed to do the heavy hauling. The eastern and western Caribbean services, however, are increasingly difficult problems.

Dominican ports are served by vessels of the Atlantic, Gulf, and West Indies Steamship Company (American), which call three times monthly. The vessels are between 2,500 and 3,600 gross tons, and develop speeds of 11 and 12 knots. Martinique, Guadeloupe, and Barbados are served fortnightly by 2,800–3,600 gross ton, 12½–12-knot steamers of the Quebec Steamship Company (Canadian), and by chartered vessels of the Atlantic, Gulf, and West Indies Steamship Company. Porto Rican ports, Curaçao, and Venezuelan ports are served by weekly sailings out of New York of the 1,700–2,800 ton, 10–12½-knot vessels of the Red "D" Line (American). The 11–12 knot, 3,300–3,700 gross ton steamers of the Royal Dutch West India Mail Company (Dutch) furnish fortnightly service between New York and Haiti, Curaçao, and Venezuelan ports. The 3,000–4,000 gross ton, 10-knot vessels of the Trinidad Shipping and Trading Company (British) make two or three voyages each month between

New York and Grenada and Trinidad. The Windward Islands, Trinidad, and British Guiana are connected with Halifax by fortnightly sailings of the 12-knot, 3,600–4,800 gross ton steamers of the Royal Mail Steam Packet Company (British). Kingston, Jamaica, is connected with Liverpool by the steamers of Elders & Fyffe's (British), a subsidiary of the United Fruit Company.

The great need of the eastern Caribbean region is a line of fast cargo liners, about 9,000 gross tons in measurement and capable of carrying 7,000 tons of cargo. Such vessels, cruising at 16 knots, could serve a circular route including St. Thomas, Barbados, and Trinidad on the way to their terminus at La Guaira, Venezuela; and on their way back to New York they could stop at Curaçao and Santo Domingo. Five vessels of this sort could give weekly service, and the time from New York to La Guaira would be only eight days.

The situation in the western Caribbean is altogether different. There are a number of lines offering relatively high-grade service to the Canal and to the ports of Colombia and Central America, as well as to Cuba, Haiti, and Jamaica. Among these lines are the United Fruit Company (American), which operates three passenger-and-freight lines out of New York, one out of Boston, and four out of New Orleans. The vessels employed in these runs are 15-knot ships of 7,780 gross tons, giving weekly service. Such ships touch at Jamaica, Colon, and Port Limon, and some of them go on to Colombian ports. The Royal Mail Steam Packet Company (British) furnished a fortnightly service from New York to Colon by way of Cuba and Jamaica, thence touching a Colombian destination. This service, suspended during the war, is expected to be resumed with 15-knot steamers of about 6,000 tons. The Panama Railroad Steamship Company (United States government) operates six monthly sailings to Colon and Central American ports with 5,700–9,500 gross ton vessels of from 12 to 14 knots speed. The old German service, which has not been replaced since the war, furnished sailings from New York to Haiti and Caribbean ports, and to Colombia by way of Cuba, Jamaica, Colon, and Panama. The Haitian service was fortnightly, while the service via Cuba offered weekly sailings. The vessels belonged to the Hamburg-American Atlas Service, and were of 4,300 to 4,700 gross tons, making 13 knots. A call at Haitian ports is now made by the steamers of the Panama Railroad Steamship Company on the voyage to and from New York and Colon.

The need for fast freight, passenger, and mail service in this region has increased greatly since the opening of the Canal, but all the existing services have been badly disorganized by the events of the war. Notwithstanding the restoration of British and American steamers to their former routes, there is still a wide gap to be filled in almost every route. The interests of American commerce at present, and for the future, demand the establishment of American-flag service of a higher grade than any yet furnished by the steamship companies of any nation. We should have a weekly service of 17-knot, oil-burning cargo-and-passenger liners running between New York and Colon, making calls outbound at Port au Prince, Haiti, and Cartagena; and on the inbound voyage at Kingston (Jamaica) and Santiago (Cuba). Such vessels should measure about 9,000 gross tons, carrying 7,000 tons of cargo, and they should be equipped with ample refrigeration capacity.

Across the Atlantic Ocean from our southern neighbors, but still in the Western Hemisphere, lies the great continent of Africa. One hundred years ago our ships and our merchants enjoyed a large and profitable trade with those distant shores; but when the Civil War destroyed our shipping, the absence of direct connections destroyed the trade. After many years the trade began to pick up again under pressure of sheer necessity; but until the outbreak of the German War every ton of it was conducted through foreign hands. In South Africa particularly there is great demand for American products, some of which compete with the products of England and some of which do not. In the United States there is great and growing demand for many of the products of South Africa. Unless a direct American steamship service is established, the trade will, as in the past, be conducted through the channels of foreign owned carriers, subject to the influence of our commercial competitors, while passengers will be compelled to travel via Europe.

Between 1914 and 1918 our imports from South Africa increased from a tonnage of 8,472 and a value of $2,468,850 to a tonnage of 54,101 and a value of $33,295,835. At the same time, our exports to South Africa increased from a value of $14,834,974 to a value of $35,199,720 (tonnage for the latter year not available). The interesting thing about the growth of our exports to South Africa is that the displacement of British and German goods by American goods was not a war-time phenomenon, but began in a perfectly natural way some years before the war. In 1910, for instance, 59 per cent. of South Africa's imports came from England, 7 per cent. from the United States, and 10 per cent. from

Germany. In 1913 these percentages had changed so that 54 per cent. of the goods came from England, 9 per cent. from the United States, and 8 per cent. from Germany. In 1918 imports from England stood at 51 per cent., having lost only 4 points, while imports from the United States stood at 17 per cent., having gained 8 points, or the exact equivalent of Germany's loss in the interim. From these figures it is clear that the gains of American commerce are permanent, and that they have not been scored at the expense of our Ally, the mother-country.

South Africa never has been more prosperous than at present. Financially and commercially, she has felt the burden of the war less than any other part of the British Empire. Like all other undeveloped countries, the imports have fallen away sharply during the period in which all the older nations were too busy with the war to manufacture for exportation. But during the same period the exports of South Africa increased steadily and by large increments. New lines of industry have sprung up everywhere. Dairies, wattle extract factories, plants for curing meat, and wool-washing establishments are among the new activities. The development of these establishments has created a brisk demand for structural steel, machinery, and many other products of the United States.

An encouraging feature of the situation is that this new business is well balanced. The market for many of the products of South Africa in the United States is brisk. Hides, skins, wool, chrome ore, copper, tin, corundum, and asbestos are all wanted in large quantities. In return for them, South Africa wants iron and steel products of all descriptions, agricultural implements, motor-cars and motorcycles, arms and ammunition, boots and shoes, and cotton manufactures. During 1918 and 1919 a number of South African merchants journeyed to the United States in quest of South African agencies for American goods.

However, the transportation side of the story is not so encouraging. The lack of direct mail service between the United States and South Africa is doing serious damage, if not actually jeopardizing this flourishing new trade. Since the war a great deal of freight has been carried direct, both by British and American cargo vessels, but the mail still goes by way of England. Consequently, bills of lading and invoices often arrive fifteen or twenty days after the goods that they should accompany. Shipping agents usually refuse to surrender the goods in these circumstances unless protected by a bond, and the customs authorities assess freight at from 20 to 40 per cent. above the amount on which it would have been necessary to pay duty had a certified invoice been available. This excess is not refunded until three months after the filing of the invoice. A liner service from the United States is necessary, not only to remove this obstruction, but also to bring the parcel-post service into play without involving the long delay now involved in the voyage by way of England. It is also necessary to bring South African and United States merchants into personal touch with each other.

The steamship lines that make a practice of shipping goods direct between the United States and West and South Africa are the Houston, the Prince, the Union Clan, and the Elder-Dempster lines. In addition, the American and Indian Line maintains two joint services, one in combination with its South and East African serv-

CHAPTER XII

AMERICAN COMMERCE IN AUSTRALIA AND THE FAR EAST

A DESPATCH from Melbourne says that, apart from the collapse of commerce with Belgium and Germany, the most striking feature of the Australian trade situation is the increased share of business that has fallen to the United States in the last few years. In 1913 this country furnished 10 per cent. of Australia's imports from countries outside the British Empire; in 1917 the amount had increased to 18 per cent.; and in the year 1919 it is believed to have passed 20 per cent. The reasons for this steady increase are more interesting and important than the increase itself, for they reflect Australia's growth. The great South Pacific continent is launched upon a program of development similar to the one undertaken and carried out in the United States between 1870 and 1890. Railroad systems and great construction enterprises, long planned, are getting under way. America is for Australia a great reservoir of engineering experience, a museum of engineering examples, and a source of supply for construction materials and equipment. The same things are true of Australia's neighbor, New Zealand.

Like South Africa and other new countries, the total imports of Australia fell away sharply during the Great War, partly on account of the military preoccupation of the older exporting nations, and partly because of the world-wide shortage of ships. The value of American exports to Australia increased from $54,000,000 in 1914 to $83,000,000 in 1918, and the attendant decrease in their tonnage volume was only a slight one. American imports from this region increased from the value of $22,000,000 to the value of $61,000,000 in the same period, and here again the accompanying tonnage decrease was only a slight one, a matter of 60,000 tons in 375,000. These circumstances unquestionably indicate that the United States is favored in Australian trade above all other nations, and to an extent that enabled her share of Australia's commerce to increase during a period in which that of all other nations decreased sharply. The natural economic ties between Australia and the United States have recently been strengthened by the contact of Australians, New Zealanders, and Americans as comrades on the battlefields of Europe, and still more recently by the appointment in 1918 of an Australian Commissioner to the United States — an envoy whose status is as near that of a diplomatic representative as it is possible to send from a commonwealth that does not enjoy full technical sovereignty.

It seems clear that if the Australian-American trade is to grow as it should grow, the Australians and New Zealanders should be free to purchase in America, and to get from America not only such goods as they cannot get elsewhere, but such goods as they want. This can be accomplished only with the aid of direct steamship service of the highest class, sailing under the American flag, and providing frequent sailings. Before the war there was only one American steamship company engaged in this trade; the Oceanic Steamship Company, which maintained a monthly service between San Francisco and Sydney. Its largest vessel, the *Ventura,* was a steamer of 6,282 gross tons, making a speed of 16½ knots. The Union Steamship Company of New Zealand, with head offices at Dunedin, operated a passenger line with monthly sailings between San Francisco and Wellington and Sydney. The largest vessel on this route was the *Tahiti,* of 7,585 gross tons and speed of 17 knots. The American and Australian Line, a British company owned by the Bucknall and kindred interests, operated a freight and passenger service between New York and Melbourne and Sydney. The Canadian-Australian Royal Mail conducted a monthly service between Auckland and Sydney and Vancouver, connecting with coastwise steamers to Seattle.

Australia's steamship connections with Europe, and consequently her trade opportunities with Europe, always have been and still are much better. On that route the North German Lloyd, the White Star Line, and the Atlantic Transport Company offered liner service of the very highest class. In addition, the Peninsular and Oriental and the Orient Steam Navigation Companies each conducted fortnightly services to and from Australia. Also the vessels of the Messageries Maritimes Company called at Freemantle and Adelaide on their way to and from New Caledonia. The finest vessels in this service were the ten steamers of the Peninsular and Oriental, most of which maintained a speed of 18½ knots an hour. The largest of this fleet was the *Maloja,* of 12,431 gross tons. The Orient Steam Navigation Company was not far behind this standard, however. Its seven best ships were all in the 18-knot class. The largest of them, the *Orama,* measured 12,927 gross tons.

It requires no argument beyond this array of European steamship connections to show that there must be some excellent American steamship connections established in the immediate future if the American people are going to participate in the benefits accruing from the upbuilding of the great Australian commonwealth into a powerful modern nation. We must have fortnightly service from San Francisco to Sydney by way of Samoa and Wellington. This service should be offered by 12,000 gross ton passenger and cargo liners having the finest of accommodations and making a speed of 18 knots an hour. Allowing for one day each at Samoa and Wellington, such vessels would reach Wellington in fifteen days and Sydney in eighteen days out of San Francisco.

The stop at Wellington would add about two days to a straightaway run to Sydney. Nevertheless, the connection is unquestionably worth the delay. The city of Wellington has a trade of $100,000,000 a year. It is the center of the New Zealand wool market, and of the trade in meat, dairy products, kauri gum, and rabbit-skins — all of which go to make up the life-blood of New Zealand commerce. Machinery of all types, agricultural implements, electrical goods, automobiles, typewriters, sewing-machines, and metal-working tools and machinery are in great demand. Australian cargo for the return voyage of the new American liners would be hides, wool, copper ingots, pig-tin, nickel, and certain manufactures of zinc. Virtually all the Australian requirements from the United States, except steel rails, shapes, etc., are of high value in proportion to their bulk, and therefore constitute what is essentially liner cargo. To the American who has an eye for the long future, Australia seems to offer opportunities second to those of no other trade region in the world.

Even more than the Australian trade, the trade of China and Japan demands the service of fast passenger and cargo liners — the ships we have not. Except for our exports of structural steel, rails, cement, and oil, we send to those countries very few cargos that one would care to place on board a slow cargo steamer of the tramp type in times when competition is keen. Likewise, the Chinese, Japanese, and Korean cargos that we need most urgently, and of which the values are greatest, are essentially liner cargos. Tea, of course, can move any way; but the imports I have in mind are such articles as silk, cotton goods, paper goods, mats and matting, toys, porcelain, furniture, and matches.

In 1913 the United States held 23 per cent. of the total trade of Japan, and its share has since increased to 32 per cent. Our participation in the total foreign trade of China has grown from 8 per cent. to 15 per cent. in the same period. In absolute figures, the tonnages of these two trades have doubled within five years, imports and exports alike. The value of our imports from this part of the Orient now stands at about $450,000,000 a year, while the value of American products sent there in exchange is running at the rate of $375,000,000. As in the past, the excess of the value of our imports over our exports is paid by us to Europe in the form of raw materials. Europe works these raw materials into finished products with her own labor, sells part of them in Europe or South America to pay Asia's indebtedness for interest on European investments, and lets Asia have the rest of them to balance her American account.

Now that Europe is straining every effort to reduce her imports of manufactured products, and the United States faces a serious condition of overproduction in consequence, it is encumbent upon us to try to balance our own account with Asia by sending her our own merchandise in payment for the full amount of our imports. In order to do this, we shall have to provide ourselves with a fleet of American-flag liners capable of competing with the liners by means of which other countries are supplying Asia with their products. In our present position we are situated exactly like a merchant in a city who relies upon the spare sales force and spare delivery wagons of his competitor. Here is a brief résumé of what has been going on in the development of international delivery service in the Pacific Ocean since the outbreak of the Great War destroyed the old order of things.

The position of the United States is much worse, both relatively and absolutely, than in 1914. Then the Pacific Mail Steamship Company had the *Mongolia* and *Manchuria,* of 13,639 gross and 14,500 dead-weight tons, capable of making from 14½ to 16 knots. Also, the Great Northern Steamship Company had the *Minnesota,* of 20,600 gross tons. The disorganized financial and transportation conditions of the early days of the war caused these vessels to be sold, two to the International Mercantile Marine Company, and one to its subsidiary, the Atlantic Transport Company. Both have been withdrawn from the trans-Pacific trade. They were the largest and finest American-flag vessels in the Pacific Ocean, and the only ones capable of entering into competition with the Canadian Pacific lines, the Toyo Kisen Kaisha, the Osaka Shosen Kaisha, the Hamburg-American Line, the Royal Mail, and Blue Funnel Line.

During the war all the German and most of the British liners were absent from the field, and the Japanese predominated the trades everywhere. At the beginning of the war the United States ships represented 21 per cent. of the gross tonnage and 25 per cent. of the dead-weight tonnage engaged in the trans-Pacific trade. British ships represented 39 per cent. of the gross and 29 per cent. of the dead-weight. German ships represented 7 per cent. of the gross and 18 per cent. of the dead-weight. In these figures gross tonnage can be taken to indicate passenger capacity and dead-weight tonnage to indicate cargo capacity. Bearing this fact in mind, the changes that had already occurred by 1916 can be seen from the following figures for the latter year: American ships, 2 per cent. gross and 2 per cent. dead-weight; British ships, 30 per cent. gross and 38 per cent. dead-weight; Dutch ships, 13 per cent. gross and 10 per cent. dead-weight; Japanese, 55 per cent. gross and 50 per cent. dead-weight. Thus the Japanese acquired control over passenger and freight traffic at one stroke — and they still hold it, while reports of new construction under way in Japan indicate that the Japanese companies plan to offer in the near future liner service such as the Pacific Ocean has never seen.

Since 1916, however, the Pacific Mail has increased its fleet by the *Ecuador, Colombia,* and *Venezuela,* vessels of 5,600 gross tons and 12–14 knots speed, which are helpful to the cause of American commerce, although they cannot compare with the splendid liners that were sold in 1915. The largest of the foreign liners are the Canadian Pacific ships *Empress of Russia, Empress of Asia,* etc., measuring 16,900 gross tons and making a speed of 19 knots. They touch at Yokohama, Kobe, Nagasaki, Shanghai, Hongkong, and Manila, offering fortnightly service out of Vancouver. In addition to this service, the Royal Mail connects Puget Sound with the Orient on one leg of its service to London by way of the Suez Canal. This service is fortnightly, and offers vessels of 9,400 gross tons and 12½ knots speed. The Japanese trans-Pacific service of the Nippon Yusen Kaisha is also fortnightly, and employs vessels of 6,000 and 7,000 gross tons.

The needs of American trade with the northern Oriental region seem to call for liner service out of Seattle, calling at Hakodate, Vladivostok, Moji, and Nagasaki on the outbound voyage to a terminus at Shanghai, and at Vladivostok and Hakodate only on the return voyage. Such a route would serve a larger area than is covered by any of the existing trans-Pacific lines, since it would include the three Japanese islands, Siberia, Korea, and the main doorway of northern China. The vessels should be about 15,000 gross tons in size, with a cargo capacity of 9,000 dead-weight tons. They should be thoroughly up-to-date oil-burning passenger ships with ample refrigerator capacity. Their speed should be 20 knots an hour. Five such vessels could maintain service out of Seattle at ten-day intervals, making the outbound voyage in fifteen days and the return voyage in thirteen days.

All the trade of the United States with the south of Asia and the islands of the Indian Ocean should focus at Manila. Already there is a strong and growing tendency to set up Manila as an entrepôt or transhipment center, and the establishment of a good American-flag liner service connecting Manila with San Francisco and the Canal would hasten the day when the whole of our trade with the Indies can be expeditiously handled in consequence of efficient organization. High-class cargo and passenger liners of 12,000 gross tons and 9,000 tons dead-weight capacity should make the voyage from San Francisco to Manila by way of Honolulu in seventeen days at a speed of 18 knots an hour. Four such vessels could maintain fortnightly sailings, but if the trade of the region they are to serve continues increasing at the rate now indicated, fortnightly sailings hardly will prove sufficient. At Manila these vessels would unload cargo destined for all parts of the south of Asia and the Indies, and pick up cargo from these various points destined for the United States. Several fleets of 6,000-ton vessels of 12 knots speed should distribute and provide these cargos respectively.

In the American steamship program of the future, there should be provided such bulk cargo lines radiating from Manila to the different islands and points along the coast as circumstances may indicate from time to time, and as business develops. But at the beginning it will be important to establish a circular service calling regularly at the principal ports of the Indies as far as Calcutta and back. This service could be maintained by three cargo-and-passenger vessels of 6,000 gross and 5,500 dead-weight tons, capable of making 15 knots an hour. Once a month one of these steamers should leave Manila for Singapore, Colombo, Madras, and Calcutta, returning by way of Rangoon, Penang, and Singapore. On alternate sailings, Rangoon should be the first stop after Singapore, and the ports named would thence be visited in reverse order. This route will cover the tin, rubber, and tapioca trade of the East Indies and the Malay Peninsula; the rice trade of the district tributary to Rangoon, the jute and leather trade of Calcutta, the varied products of British India that are exported from

Madras, and the tea, spice, and graphite trade of Colombo.

Outside of British and German cargo steamers operated out of New York, the United States before the war had no direct service to any part of this region. The route lay by way of Europe. Three trans-Atlantic lines advertised sailings from Liverpool to India. A Scotch line made connections for India by way of Glasgow. An Austrian line offered service by way of Trieste, and an Italian line made sailings from New York to Naples and from Naples to India. Four of these lines also went to Singapore. This state of affairs naturally cut the United States off from India completely the moment war was declared. Soon the need for passenger service on this route became so great that a number of makeshift lines had been put into operation by the end of 1915. Later Ellerman & Bucknall's American and Indian Line, which conducted a freight service between New York and India before the war, put some vessels into service between New York and Calcutta by way of Cape Town and Durban. Still later, the Pacific Mail, which already had a line from San Francisco to Japan, inaugurated a service from San Francisco to Singapore, Calcutta, and Colombo with the small steamers *Santa Cruz* and *Colusa.* Still later two Dutch lines, the Netherland and the Rotterdam Lloyd, established a joint service to the Dutch East Indies. The largest vessel operating in this line is the *Grotius,* of 5,867 gross tons and 14-knot speed. In addition, the Japanese are advertising service to Calcutta and Singapore, transhipping at Kobe or Yokohama.

This is a much better service than American trade ever has enjoyed before, but it does not compare with the magnificent liner service that connects India and the Indies with the nations of Europe. The pre-war services, which are being reëstablished as rapidly as possible, were furnished by the Peninsular and Oriental on a weekly basis with 7,500-ton steamers carrying 450 passengers and making a speed of 19 knots, and by the British India Steam Navigation Company with five steamers of 7,400 tons and 17 knots speed. Beside these, there were many others of different nationality and various degrees of excellence. The British-Indian Year-Book for 1915 lists sixteen different passenger lines as maintaining regular service between India and Europe before the war. With these facts in mind, the importance of establishing a liner service under the American flag with entrepôt and connections for handling American business direct, looms more important than ever.

In the case of British India and the East Indies, as in the case of South Africa and of Australia, the present increase of American commerce is due not to the Great War, but to natural economic causes that antedated the war. In virtually every case, the increased demand for American products has been coincident with the inauguration of new development work, and seems tantamount to an invitation to come in and participate. In 1900 imports into the United States from British India, the Straits Settlements, and other parts of the Indies were valued at $45,355,976. In the year 1914 those from British India alone were worth $73,630,880; those from the Straits Settlements, $26,307,860; and those from the other British East Indies (principally Ceylon) were valued at $11,964,767. This phenomenon was due to the development of the rubber plantations of the Malay Peninsula, and also to the increased production of jute.

Much the same thing is happening, and much the same sort of opportunities await us, in the Dutch East Indies. The metamorphosis of South Sumatra from a jungle into a prosperous plantation area has required only a few years. The discovery of oil in the interior has been followed successively by the building of roads, the laying of pipe-lines to the sea-coast, the immigration of settlers, and the laying out of large plantations. Rubber, coffee, rattan, kapok, and tobacco are now grown in large quantities. Railroad construction is also under way, one line, connecting the interior with the seaport of Tanjong Karank, having been completed and placed in operation.

Following the establishment of the direct Dutch steamship connection with the United States, and the voyages of vessels owned by the United States Shipping Board, several American selling agencies have been established in the large cities of the archipelago. These agencies represent a wide variety of American industries, and they are offering products ranging from household goods to heavy machinery, all of which are in good demand. All of these American interests will be represented at the industrial exposition scheduled to open at Bandong in the month of May, 1920.

The Dutch colonial government is planning the construction of 10,500 miles of railways throughout the archipelago in the next fifteen years, and a news despatch says it is planned to interest American capital in the enterprise because of the apparent impracticability of securing steel and railway equipment elsewhere in the near future.

The vast productivity and buying power of the Dutch East Indies is but little appreciated in this country. With 200,000 acres of sugar-cane under cultivation, the island of Java ranks next after Cuba. During 1918 the average yield was 38½ tons of cane to the acre. About 200 centrals are now in operation, and their annual output ranges between 1,750,000 and 2,000,000 tons. While virtually all of this sugar is consumed in Far Eastern markets, the development of the industry bears directly upon the commerce of the archipelago with the United States. Some of the centrals have their own railways for hauling cane from the plantations, while others use large numbers of automobile trucks for the same purpose. Practically all this equipment, as well as the electrical equipment and machinery of the sugar factories, has been purchased in the United States for the last five or six years.

Similar instances of opportunities for trade expansion through the establishment of regular and direct American steamship connections can be recited almost without limit. For instance, it has recently been discovered that in the interior of China the slowly-moving civilization, which is not yet ready to appreciate sewing-machines, modern farm implements, and automobiles, will seize avidly upon old-fashioned plows and wooden farm-wagons such as we used in this country fifty years ago. The same thing is true of many other homely articles of manufacture that ordinarily one would not think of manufacturing for export to-day. A large market entirely free from foreign competition awaits any American manufacturers who may care to enter such a novel field of enterprise.

But, apart from all these considerations of profitable opportunities, there is a broad national reason why every effort should be made to establish steamship lines and develop direct American commerce with all the countries of the Orient. We do not ordinarily consider our overseas trade in connection with our domestic credit situation; but at present the two are directly linked together by the movement of gold. In 1919 the excess of our imports from Asiatic countries and the Indies over our exports to them amounted to $376,000,000; and, in the absence of our old-time facilities for settlement through Europe, resulted in the direct exportation of $205,000,000 in gold and $194,300,000 in silver to cancel our indebtedness, some of it cumulative. In present world-wide financial conditions, the continued power of Asia, South America, or any other part of the world to draw upon the United States for gold is a matter for serious consideration.

A gold dollar in the vaults of a Federal Reserve Bank serves, or may serve, as the basis for deposit liabilities of $2.50; and these deposits to the credit of a member bank may, in turn, serve as the basis for credit extension by that bank to customers of from seven and one half to fourteen times that amount, or from $19 to $35. With reserves as close to the legal minimum as they were in the autumn and winter of 1919 and in the first three months of 1920, it is easy to imagine that the domestic credit situation must have been subjected to considerable embarrassment by reason of the exportation of $291,000,000 in gold to all parts of the world during the year; and that the loss of the $7,375,000,000 of potential credits thereby destroyed probably has been an important factor in the wide fluctuations of money rates and the heavy liquidation that have taken place all over the United States while the gold was being withdrawn and sent out of the country.

Whatever may be one's opinion as to the desirability of considerable domestic liquidation and currency deflation at the present time, I do not think anyone will question the statement that it is a national danger to permit the country's gold reserve to be continuously exposed in this manner through unbalanced trade. Also, it is axiomatic that the United States can never hope to amount to much as an international banking power as long as its own domestic money rates are liable to ten- and fifteen-point fluctuations without notice, and as long as the American dollar stands at various discounts in terms of Japanese yen, Indian rupees, Shanghai taels, Hongkong taels, and the various other heterogeneous currencies of Asia.

All this can be corrected by the investment of American capital in the development of the Orient, the development of a better balanced direct trade with the Orient, and the consummation of banking and other financial arrangements through which the current credit balances of the Orient in the United States can be settled by the procurement of goods by the United States for the Orient from other parts of the world. But, in the last analysis, all these things fall back upon the fundamental considerations of intercourse and negotiations — in other words, upon regular American steamship service.

CHAPTER XIII

THE SHIPPING BOARD PLAN FOR OWNERSHIP AND OPERATION

NOWHERE does there exist so complete a commentary upon the shipping problem of the United States as the concise, tersely worded document transmitted to Congress by the Shipping Board on June 11, 1919, as its recommendations for the establishment of an adequate merchant marine under the American flag. Every detail of the tremendous task is provided for, including the means for financing new lines struggling to secure their fair share of business in competition with old established lines sailing under foreign flags. The document is not a literary work in any sense of the word, and many of its features need considerable elaboration in order to make them thoroughly understood. In the succeeding chapters of this book I hope to furnish much of this elaboration; but meanwhile a close paraphrase of the original recommendations to Congress will develop an interesting perspective of the whole undertaking.

At the outset, the Shipping Board recommended ultimate private ownership and operation as the fundamental American policy toward commercial shipping. Its plan therefor contemplated government retirement from the building, owning, and operating of merchant-ships at the earliest practical date, in order, first, to give American overseas trade the benefit of competitive service;

second, to leave steamship operators free to render this competitive service; and, third, to impart to present and prospective shipowners that confidence which they must feel before they can be expected to invest their money in existing ships, and to place the orders for new ships without which the outlook for the American ship-building industry would not be encouraging.

In order to carry out this policy, we thought the government should build no more ships, other than those already in the construction program, except such new vessels as are needed to balance the various fleets so they can take care of all the different kinds of business transacted in their respective trade routes. We proposed to get the money to build these additional ships by selling some of our superfluous cargo vessels to foreigners. At the same time, we recommended the adoption of and rigid adherence to a definite sales policy covering all the ships we wished to retain under the American flag.

It was realized that the sale of so vast a fleet hardly could be consummated in less than four or five years; so we pointed out that in the interim it would be necessary for the government to operate the unsold ships in a manner that would not permit their operation to react unfavorably upon the profitable operation of the ships that had been sold, and that at the same time would definitely tend to stimulate the sale of more ships. To accomplish this double purpose, we recommended the assignment of unsold ships to private managers and operators for operation for government account, as has been, and still is, the practice of the Shipping Board whenever practicable. The operation of such ships through the medium of operators and managers should not react unfavorably upon the operation of privately owned vessels because, under present conditions, only flagrant mismanagement in the distribution of ships by the Shipping Board would be likely to cause over-berthing in any trade route.

By following out this plan the government should be able to take care of its ship investment as long as any ships remain in its hands, because the difference between the earnings of the ships and the fees paid to the operators and managers would go into the government's operating fund. There, these moneys would be available for insurance, depreciation, repairs, organization overhead, and the many other liabilities a shipowner must always be prepared to meet with earnings. This method of operating the unsold ships would also place in the hands of the government a mobile tonnage reserve peculiarly suited for use in opening and developing new avenues and fields for American commerce. Not only would it permit the development of new business and new steamship routes with great ease: it would also, and at the same time, develop the competent ship operators, familiar with the routes, who will buy the vessels as soon as conditions warrant their sale.

It is not anticipated that the establishment and development of new trade routes would involve any expenditure of government money. On the contrary, a surplus of receipts over expenditures in the operating fund, together with the moneys paid into the " Merchant Marine Development Fund," described later, should provide centralized working capital adequate to finance the whole of this important national enterprise.

With these principles in mind, we recommended the enactment of legislation that would empower the Shipping Board to carry on, for as long a period as might prove necessary, the work that was then being done in planning and organizing, with the equipment on hand, an adequate, well balanced, and properly coördinated merchant marine. We advised that such legislation should include the power to sell to American citizens, at the current world market price, all government-owned steel vessels, at least 25 per cent. of the purchase price being paid upon delivery, the remainder falling due and payable in graded annual instalments over a period not exceeding ten years. The Board should also be empowered to take and hold a mortgage for the unpaid balance, the mortgage bearing interest at the current market rate for similar mortgages, the rate being revisable annually.

The power to take and hold such mortgages should also include the power to dispose of interest moneys by paying into the United States Treasury that part of the interest which represents payment at a rate fairly reflecting the cost of short-term credit to the government. The difference between this sum and the interest actually paid at the commercial rate the mortgage carries (representing a saving the government is able to effect in virtue of its peculiar credit advantage) should be paid into a special fund of the Shipping Board, called the Merchant Marine Development Fund. This power to sell government-owned vessels should also include the power to sell to foreigners, at prices not less than those charged American citizens, and on terms not more advantageous, such wood ships and coal-burning steel ships as may be superfluous or otherwise undesirable in the American merchant marine. Coupled with this power to sell to foreigners should be the power to use the proceeds of such sales to build the vessels the United States needs to balance its merchant marine as planned, these new vessels to be disposed of in the same manner as other prime vessels owned by the government.

In considering the effect that legislation authorizing the sale of ships at "the world market price" is likely to have, it seems advisable to explain what we had in mind when we used the expression. In order to judge the price prospects of such a market, it is necessary to realize that ships are fluid international commodities, which, because they compete with one another irrespective of the flags they fly, maintain a remarkably level capital value throughout the world. The vigilance of shipowners is so keen, and cable service is so quick, that abnormal earning power in one trade route is destroyed almost as soon as it appears by an inrush of tonnage from other trade routes where the earning power of ships for the time being is not so great. With few exceptions, this condition is as true to-day, when a world-wide shortage of tonnage is keeping all earnings and capital values high, as it was in 1913, when a world-wide surfeit of tonnage with respect to trade was keeping earnings and capital values at much lower levels.

As good an idea as anyone can form of the present and prospective values of ships can be had from the following statements of fact. There is no question that the current charter market, which itself is the product of many factors, reflects accurately the momentary capital value of spot-delivery ships. It is not necessarily an absolute index of their investment value, however, because of its susceptibility to fluctuations under temporary influences. At the time these recommendations were made, and throughout the remainder of the year 1919, the bare-boat charter rate of an ordinary cargo vessel was about $5 a dead-weight ton a month. This means that a 10,000-ton ship can be hired for $50,000 a month, or $600,000 a year. In order to reach a conservative valuation, I shall assume that this rental pays as large an income as 20 per cent. The indicated capital value at the moment is, therefore, $3,000,000, or $300 a dead-weight ton. A large part of this indicated value is due to the present abnormal earning power of tonnage, and no one would expect a shipowner to pay $300 a ton for a vessel unless she were peculiarly suited to his especial needs. Still, this evidence of the current value of spot-delivery tonnage is cited because a knowledge of it is necessary in order to understand the situation as a whole.

At the other extreme is the ship-builder's price for distant-delivery ships. This figure is almost entirely independent of the current demand for spot tonnage, and is composed of two principal factors: anticipated construction costs, and the desire to book business in competition with other builders. In England, where construction costs were held down during the war, soon after the armistice, the ship-builders' bid for two and a half years' delivery was around $150 a dead-weight ton, the buyer agreeing to assume any increased cost of labor and materials. In the United States, at that time, where the increased efficiency of shipyard management and labor is lowering construction costs, final flat prices of from $160 to $175 were being quoted for six to nine months' delivery.

Between these two extremes, the value of ships has a high rather than a low level and tendency — especially spot-delivery ships. Most of the world's fleets were built before the war and during the first two years of the war. They have been driven hard, and they are heavily depreciated. Their periods of idleness while undergoing postponed repairs are long, and will become longer. Their repair bills are large, and will become larger. In a short time the mortality among them will be very great. Virtually the only really large number of ships free from these handicaps are the ships built by our Shipping Board, and, because the trade of the world must be carried by someone at some price, it seems reasonable that the demand for ships that can be operated with certainty and economy should come very near to establishing the world's standard market price.

Expressed in another way, the offers made by our citizens, and others, for United States government-built ships should be regarded as reflecting carefully estimated probable earning power throughout the now visible future — modified, of course, by the buyer's natural desire to buy as cheaply as he can. Moreover, since the completion and delivery of a large part of our fleet will be spaced out over 1920 and the first two months of 1921, there seems in this circumstance a sufficient guaranty that our sales prices will always follow the real market very closely, and especially that no tonnage will be dumped on the market at prices below those justified by actual economic conditions in the ocean-carrying trade.

In this connection it is interesting to note the sharp upward turn taken by the prices of ships in England as published by Lloyd's List. A 10,800-ton standard cargo vessel built by the British government in 1918 brought $2,114,100, or $195.61 a dead-weight ton, in 1919. A war-built standard steamer of 2,980 dead-weight tons brought $437,400, or $147 a dead-weight ton. During the last quarter of 1918 the ruling price for such standard steamers was $100 to $120 a dead-weight ton, according to the size, finish, etc., of the ship, and apparently without regard to actual construction cost. These figures unquestionably reflect recognition of the soundness of the American prices for new tonnage — especially when it is remembered that the vessels we are selling to our citizens are oil-burners, while the British standard steamers are coal-burners.

The Lloyd's report also discloses sharp advances in the resale price of old tonnage. The *Rheims,* a 6,000-ton steamer built at Sunderland in 1901, was purchased in 1914 for $100,000, or $16.66 a dead-weight ton. In 1919 the same vessel brought $325,000, or $54.16 a dead-weight ton, despite the fact that she was nineteen years of age, with hardly more than two years of usefulness in prospect. The *Quito,* 5,500 dead-weight tons, built in Glasgow in 1900, sold in 1915 for $225,000, or $40 a dead-weight ton. In 1919 the same vessel, although nineteen years of age, brought $425,000, or $76 a dead-weight ton.

The explanation of these sharp rises in the sales prices of British ships probably lies in the withdrawal of government regulations, which between 1915 and 1919 seem to have been framed and administered with the idea of holding down the capital value of tonnage. The British government certainly could not afford to permit any wild speculation in ships, which are the very life-blood of the Empire's commerce and wealth. The occasion for the sudden relaxation of these war-time regulations probably was the unlooked-for development that new ships cannot be built in England for less than three and one half times their former cost.

Returning now to the terms of sale that should be authorized by law, the American purchasers of government-owned ships should be required to engage that they will place and keep placed, if possible, hull and machinery insurance, for their equity in the vessels that they buy, with American marine insurance companies. The same provision should authorize the Shipping Board to carry in its insurance fund, as heretofore and as at present, hull and machinery insurance for the government's equity in the same vessels. This insurance should be carried for the purchaser's account, and at the same premium rate charged him by the private insurance company that insures his equity. The board should also be authorized to take the difference between the premium so collected at the commercial rate and the actual cost of the insurance to the government, representing a sum the government is able to save in virtue of its peculiar position, and place it in the Merchant Marine Development Fund.

The object of this legislative authority is to provide for the insurance of American ships with American money, and for the gradual development of an American marine underwriting business capable of protecting the vessels of the American merchant marine. It was our desire to turn over the hull and machinery insurance to private American insurance companies in the same ratio as title to the ships would pass from government to private hands, so that the government might retire from the insurance business at the same rate that it retires from the steamship business.

For the purpose of bringing about uniformity in the organization and administration of American steamship companies, and also in order to bring a really national enterprise under really national supervision, we recommend that every purchaser, operator, or manager for government account, or operator for private account, who acquires title to, or otherwise operates in the overseas trade, ships sold, owned, or chartered under the legislation in question, should be required by law to be incorporated under federal charter. We also requested Congress to authorize such incorporation, and to include in the law the requirements that: all stockholders shall be citizens of the United States; capitalization shall be limited to property value plus necessary working funds; no additional security shall be issued without permission from the Shipping Board; complete financial statements shall be published quarterly, and the Shipping Board shall at all proper times have access to the company's books. Should Congress decide not to pass federal incorporation legislation, we requested authority to make conformity with these requirements a condition precedent to eligibility to buy or otherwise operate government-owned ships in the foreign trade.

Along with these ideas about the federal incorporation of foreign-trade steamship companies, it was our thought that we should require each company to designate one of its directors to act as liaison officer with the Shipping Board. We wanted these men to form a semi-official organization, which would meet in Washington quarterly for conference with the Shipping Board and with one another on matters pertaining to the welfare of the American merchant marine. In this way we hoped to bring about a degree of free and spontaneous coöperation and coördination of effort, which we believe is most necessary, and which could not be brought about in any other way.

It has been indicated that this plan contemplates the setting aside of certain moneys made available by fortunate circumstances for a Merchant Marine Development Fund. In the matter of interest, it is estimated that the amount would be 1 per cent. of the sales price of the vessels sold, this being the difference between the customary commercial rate of 5 or 5½ per cent. and the 4 or 4½ per cent. that the government is accustomed to pay for short-term money like Treasury certificates of indebtedness. In the matter of marine insurance, the experience of the war period and the year following the war indicates that the government can safely carry hull and machinery insurance for at least 1 per cent. of the value of the vessels below the commercial market rate. It is estimated that, on the basis of $2,000,000,000 worth of ships sold on ten-year terms, the money derived from these two sources would amount to $14,000,000 at the end of the first year, accruals in progressively diminishing sums throughout the following nine years raising the total size of the fund for the ten-year period to $72,800,000, exclusive of any interest that might be earned by keeping the balance in hand out on deposit in a government depository.

It was the purpose of the Shipping Board to create in this manner a fund that it could pool with the surplus expected to accumulate in the ship-operating fund, and to use any or all of the money as it may be needed in order to carry out the spirit of the policy of encouraging the establishment and development of an adequate merchant marine under the American flag. This would include the development of new trade routes, and the financing of such other kindred enterprises as the Shipping Board might consider important to the interest of the enterprise in hand. Inasmuch as no part of the money would come from any government appropriation, we asked for full leeway in expending it.

Before any large-scale financing of the purchase and operation of ships could be undertaken in the United States, we considered it necessary to improve the legal status of an American ship mortgage in order to make such a lien an attractive investment. Accordingly, our recommendations to Congress included an elaborate outline of what we thought a ship mortgage should be. I shall not attempt even to summarize these highly technical recommendations here, but shall simply say that the mortgage law for which we asked would make of a mortgage on American vessel property a security fully as good, and in some respects better, than a mortgage on vessel property sailing under any other flag.

Our plan and recommendations also included the establishment and development of an adequate American overseas mail service carried on by vessels under the American flag. There have been a number of mail subsidy laws in our federal statutes for many years, but they have failed to develop an American-flag ocean mail service, because, in the last instance, the mail payment was based upon a flat rate per mile irrespective of other conditions, which made one service costlier to operate than another. Now that we have a substantial merchant fleet either in hand or in prospect, the Shipping Board believes there should be legislation that would discard the subsidy or bonus principle, and pay for the carrying of overseas mail, including an overseas extension of the parcel post, on the basis of service rendered. We believed that a constant flow of mail between American business men and their foreign customers would be preferable to the present uncertain and inadequate communication now provided by passenger liners, most of which fly foreign flags; and accordingly we have recommended that the United States mails be carried in all American vessels plying regular trade routes at a speed of 12 knots or more an hour.

Then, for the purpose of promoting the safety of life and property at sea, and for the purpose of instantly transmitting commercial information, we recommended that all merchant-vessels flying the American flag be equipped with wireless telegraph. It was our thought that this equipment should be owned by the Navy Department, and leased to steamship companies at a price that would just about amortize the apparatus. In return for this coöperation, we would expect the steamship companies to employ Naval Reserve wireless operators.

Finally, the Shipping Board plan contemplates a thoroughgoing system for training an adequate officer personnel. As is the case with our old ocean mail laws, the old statutes covering the training of cadet-officers should be revised to meet the new conditions. The old laws compelled mail-steamers to carry one cadet for each thousand tons burden. The cadet was an extra member of the crew, and he was paid and fed by the steamship company. The current demand for American ship's officers was not large enough to furnish the steamship company any incentive to educate and train these young men. Accordingly, they kept the lads busy shining brass and doing other menial labor for their wages and board. The cadets were taken on board simply because the law required a full crew list. Not many of them made more than one or two voyages.

Now the training of an American officer personnel has become a matter of national importance. The Shipping

Board has recommended that each American merchantship carry at least two and not more than ten cadet-officers. Half of this number should be trained as deck officers and half as engineer officers. The course should extend over two full years. The cadets should be paid living salaries by the government, and the government should pay the steamship companies fees for their tuition. The cadets may be selected from the young men who have already elected to follow the sea, or from among those who wish to do so. They may be appointed as the result of examinations held in the United States customs-houses by the local boards of steamboat inspectors under the auspices of the United States Civil Service Commission.

To my mind, the outstanding features of this plan are the provision for sound capitalization and the several provisions designated to stimulate rapid, systematic and coördinated development through coöperation of all interests connected with the steamship business. I have told how the British government took the precaution to keep down the book value of British tonnage, with the idea of keeping British ships in a position of financial advantage as compared with the higher valued ships of other nations. I have also told how the competitive advantage which that precaution may have given to British ships during the war has been swept away by the uprush of prices as soon as war restrictions were removed. But had the British, or any other government, been able during the war to place its fleets upon the sound, pared-to-the-bone capitalization basis which the Shipping Board plan contemplates for the new American fleets, they would have gained an indestructible competitive advantage which, in any rate war, would become greater and more pronounced every time a rate is cut. A compilation of the financial statements of a large number of foreign steamship companies shows that most of them are overcapitalized to the extent of from 10 to 40 per cent. of all the property value their equipment registers show.

It cannot have escaped notice that the entire Shipping Board plan has been molded about the central idea of developing direct popular ownership of American merchant shipping, and direct popular participation in all the profits it earns. Every detail of organization and administration, including the training of new shipowners by employing them to operate unsold ships, has been fashioned with the idea of placing the ships as soon as possible in the hands of American citizens who are resolved to lay down a heavy stake upon their ability to carry a fair share of the overseas trade of the United States. Every inducement and protection that the government can extend, without sacrifice of the public interest, is offered them.

CHAPTER XIV

THE ECONOMICAL OPERATION OF SHIPS

CONSIDER the majestic liner, turning aside a great bow wave as she plows her way out to sea. Then consider the dingy little salt-caked tramp, whose deep-laden bow dips obeisance as the liner's bow wave rolls by. One of these vessels has a large organization at work on two continents to keep her holds full of cargo and her state-rooms full of passengers. The other has to hunt and bargain for business in every port. The arrival of one is anticipated, and not an hour is lost in turning her around. The other has to anchor in the stream, announce her arrival to the merchant to whom her cargo is consigned, and then wait for instructions when and where to unload. The owners of one receive a large subsidy from the government. The owners of the other have no income but the freights their vessels earn. Yet in normal times the liner companies paid no greater dividends than the tramp companies, and since the year 1914 they have not done so well.

The more one sees of such incongruities, the more one feels that great opportunity remains undeveloped in the steamship business. In no other industry on earth do unprofitable scientific management and profitable catch-as-catch-can management exist side by side, year in and year out. In no other industry would an advertising possibility like a *Vaterland* or a *Mauretania* go unutilized. If the great fast liners were built to carry more cargo and fewer passengers, or if the fast liner companies operated cargo fleets in a way that would enable them to take advantage of the advertisement furnished by the existence of the famous liners, their story might be a different one. Why some such combination has not been tried out on a large scale is a mystery. Possibly generous subsidies have made money too easy to get without working for it. This seems to be the sentiment in France, where ship subsidies always have been most lavish, and where reaction against them is now very strong.

Without going into the merits of subsidies, the thought suggests itself that competition for the world's carrying trade may develop on the ocean a fast passenger service partly financed by freight revenue, and similar to the one developed by the American railroads while they were competing for overland traffic. I know of one American overseas passenger line that is now planning to operate a large cargo fleet on regular schedule over the same route plied by its passenger ships. The possibilities of this enterprise are interesting, and there is no doubt that its growth will be watched keenly, not only in the United States, but in other countries as well. All the world is now paying close attention to the economical operation of ships, and the statesmen of many nations are turning to the belief that the practice of subsidizing merchant shipping is unsound.[1]

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[1] The most authoritative British expression of opinion on this subject is: "The grant of subsidies is not recommended, other than mail subsidies, which correspond to service rendered." (Report of departmental committee appointed by the Board of Trade to consider the position of the shipping and ship-building industries after the war, Part II, Section 3. London, 1918.)

Another incongruity is the insistence of shipowners upon lower prices for ships, while in their dealings with the public they have systematically increased the inventory or book value of old ships as fast as they got possession of them. This practice, together with a failure to write off adequate depreciation from year to year, has made possible a degree of over-capitalization that renders the average steamship company more vulnerable in competition than is commonly realized. Like the practice of subsidizing ships, over-capitalization is an entanglement very easy to get into, but very difficult to shake off.

An analysis of the financial statements of a number of American, British, German, Austrian, Norwegian, Italian, and Japanese steamship companies, compiled by the Shipping Board in June, 1919, shows that over-capitalization has been widespread in the steamship business for many years. All the statements analyzed furnish concrete evidence of arbitrary inflation of original book values, and 84 per cent. of them show consequent over-capitalization. The inflation of book values ranges from 16 per cent. to 109 per cent., and the over-capitalization ranges from 8 per cent. to 38 per cent. In an effort to prevent such over-capitalization in the American merchant marine, and to give American ships an initial competitive advantage, the Shipping Board plan provides for conservative capitalization and government supervision of the issue of steamship securities.

The importance of this precaution when applied to more than two thousand ships is very great, because capital cost lies at the root of the whole problem of ship operation. In estimating the cost of operating a 10,000-ton ship valued at $2,000,000, an allowance of 7 per cent.

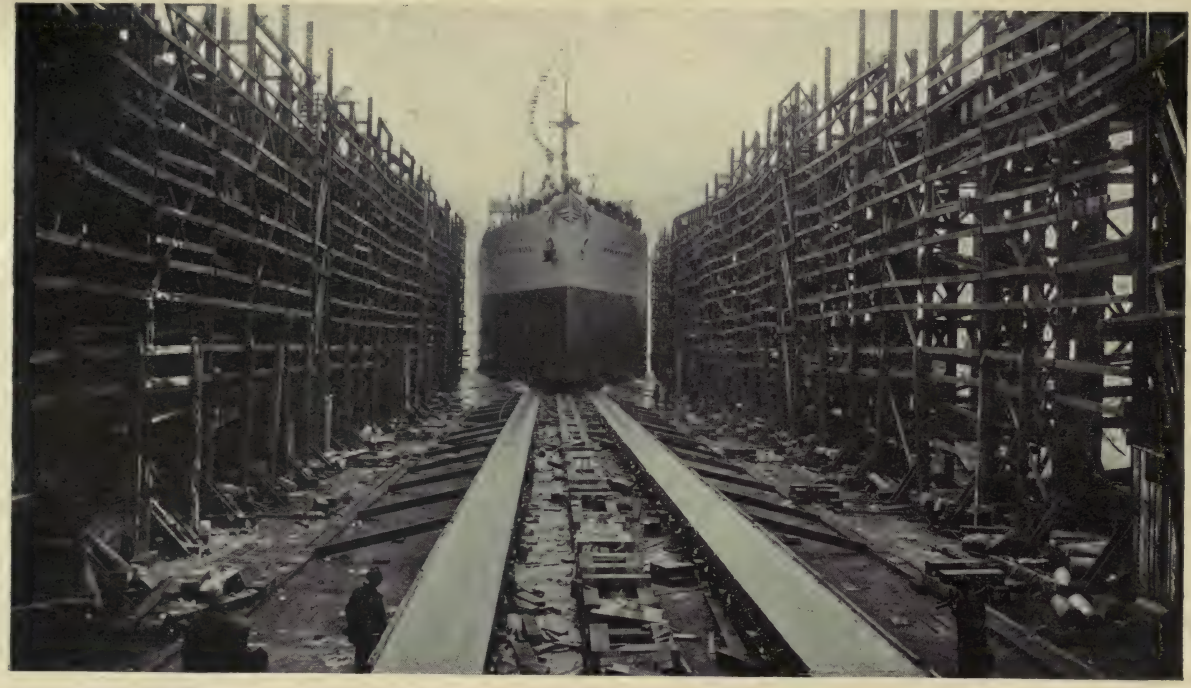
must be made for interest, 5 per cent. for depreciation, and 6 per cent. for insurance. There remains the necessity of providing a reserve for replacing the ship if she should outlive her usefulness. This item will absorb another 6 per cent. These allowances will make up an annual capital charge of $480,000, or $1,315 a calendar day. Compared with this figure, the other principal items of operating expense are small. The daily payroll of the ship's company will not exceed $175, and the average daily expenditure for oil fuel throughout the vessel's life will be about $240, to which must be added the cost of food, deck and engine supplies, painting and dry docking. Moreover, the capital charge goes on day in and day out, whether the vessel is cruising or tied to a dock.

But it will not do to confound low capital cost with cheapness. An old vessel that can be bought for $80 or $90 a dead-weight ton has not a very long life of usefulness in prospect, and she can be expected to spend a great deal of her owners' time and money in repair-yards. Such a ship would not be considered a dangerous competitor by the owners of a strong, new vessel carried on their books at a considerably higher capital value.

Again, the question of relative usefulness and versatility may enter into the question of what capital cost is justifiable. In 1911 the Robert Dollar Steamship Company and the Pacific Mail Steamship Company built ships of the same size in two adjoining shipyards. The Dollar ship was an ordinary tramp steamer. She could steam 9 knots an hour, and her winches and booms could handle about 1,200 tons of cargo a day. Her cost was $240,000. The Pacific Mail Company ship was of stronger construction and better equipment. She could steam $10\frac{1}{2}$ knots an hour, and her gear could handle 6,000 tons of cargo a day. Her cost was $450,000. One of these vessels was a cheap ship, capable of engaging in only one variety of trade. The other was a "hard-time" ship, capable of doing several varieties of business. On account of her speed and quick turn-around she could live on short cargos, and she could make freight rates under which the other vessel could not exist.

From these general principles, it is evident that the prime requisite for the establishment of a successful merchant marine in any country is the plant for producing exactly the ships wanted at exactly the right price. The shipyards of other countries never have been very far ahead of American shipyards in the economical construction of high-class ships, but in former years they did enjoy a great advantage in the economical construction of the common freight steamer. The great need of the American ship-building industry has been large output capacity; and, thanks to our war activities, this need has now been well supplied. We have the plant to guarantee that our shipowners can acquire their equipment, vessel for vessel, on as good terms as the shipowners of other nations. In addition, we are installing in our new vessels modern motive power and cargo-handling gear that will enable American shipowners to carry freight at a lower cost per ton than is possible with most of the ships now cruising the ocean under the flags of other nations.

In February, 1920, there were under construction in American shipyards, in addition to the unfinished contracts of the Shipping Board, 263 sea-going vessels ag-



Launching 9400 Ton Vessel at Merchant Shipyard, Harriman, Pa.

regating 1,256,573 gross tons (approximately 1,750,000 ead weight). This was an increase of 65 vessels over he number reported for the preceding month, and in-luded work being done for British, French, and Italian wners, as well as for private American citizens. The rices are reported to range between $160 and $175 a ead-weight ton. Moreover, they are final flat prices or vessels of which the owners can take possession vithin the calendar year — usually within seven or eight nonths from the date of contract. Nowhere else in the vorld can ships of any description be contracted for on hese terms at any price.

The current British base price for cargo vessels is 160 to $185 a dead-weight ton; but contracts made at uch prices contain a clause that obliges the owner to gree to pay any increase in the cost of labor and ma-erials which the shipbuilder may encounter before the vork is completed. With British labor holding out for a 4-hour week, taking frequent holidays, and asking for large increases in wages, there seems little prospect that many of the new British vessels will be completed at lower prices than the new American vessels. This seems especially true in view of the advantage of from $14 to $17 a ton which the American shipbuilder has in the price of steel.[1]

Foreseeing these conditions in the spring and summer of 1919, the Shipping Board recommended to Congress the selling of the vessels of the emergency fleet at the current world market price. We did not undertake to say what that price should be, for we knew it was a thing that would have to work itself out. We did not wish either to sacrifice the government's property or to place the ships in the hands of speculators — men who would make a part payment, take the ships and run them to death while high freight rates prevail, and then step out of the business. Such a course would have ruined our prospects for establishing a permanent American merchant marine. It was a very delicate situation. We had authentic information about sales of 10,800-ton war-built coal-burners in England for $195 a dead-weight ton, and we concluded that an American oil-burner was worth at least $210 a dead-weight ton. Moreover, we had bids of $220 from American citizens, and we actually sold twenty-odd vessels at prices ranging from $200 to $220. However, with the knowledge that the next few years undoubtedly would witness a material decrease in the world market price of spot-delivery ships, we set about devising ways and means to protect the serious-minded and courageous American citizens who were buying ships at the prices then current, by enabling them to do some substantial writing down of the book value of their investments while ocean freights remained high.

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[1] The weight of the steel that goes into an ordinary cargo vessel is numerically equal to about one third of the vessel's dead-weight tonnage.

About the last official act I performed, as chairman of the Shipping Board, was the writing of a letter to both houses of Congress, urging a line of action that I thought would automatically take care of the inevitable reduction from the war-time price of ships, thereby relieving the minds of prospective shipowners about the value at which their fleets would appear on their books by the time competitive conditions in ocean commerce were restored to the world. Briefly, this recommendation was that American citizens then buying government vessels be permitted to charge off annually out of earnings for three years a special amortization of 10 per cent. in addition to the customary annual write-off of 5 per cent. The sum thus set aside was to be exempt from federal taxation, provided that within three years the shipowners used the money to construct one or more new vessels in an American shipyard. A vessel sold for $225 a ton on that basis would be written down to $124 in three years. This valuation would do better than place her on competitive parity with a new vessel coming out three years hence at $150 a ton, since for that purpose, considering her age, she need only be written down to $137.50.

There is no doubt in my mind that the shipowner would be able to set aside the required amount without difficulty; and at the end of three years, when the world's trade becomes better balanced and great opportunities as well as sharp competition become the order of the day, such a shipowner would find himself in an exceptionally strong position. The same view was taken by Mr. P. A. S. Franklin, president of the International Mercantile Marine Company, who urged the adoption of the plan before the House Committee on Merchant Marine and Fisheries on October 30, 1919. Confirmation of its practicability seems to be furnished by the experience of the Pacific Mail Steamship Company, which purchased the three vessels *Venezuela, Ecuador,* and *Colombia* in 1916 at the high price of $243 a dead-weight ton. This figure was about 130 per cent. in excess of what the company estimated would have been the normal cost of the vessels, and $672,000, or 40 per cent. of the excess, was amortized during the single year 1917. Notwithstanding all this, the company paid a large dividend on its common stock in the latter year.

Now, having emphasized the overwhelming importance of capital cost in the economical operation of ships, I wish to emphasize the great importance of having a full cargo-hold whenever the vessel turns her wheel. A good idea of this may be had from the following voyage account. The figures also give an excellent idea of the relative importance of the other several items of operating cost. The voyage covered is one performed by the steamship *Magurkook* (United States Shipping Board) from New York to a United Kingdom port with a cargo of machinery, returning in ballast at the end of forty-two days. The vessel measures 6,000 dead-weight tons, 4,029 gross tons, or 2,463 net tons. She burns oil; is driven by one General Electric geared turbine fed by three Heine water-tube boilers; consumes 33 tons of oil fuel a day, and turns up 10½ knots an hour. She is carried on owner's books at $200 a dead-weight ton, or $1,200,000. Her capital charge, made up of 5 per cent. interest, 5 per cent. insurance, and 10 per cent. depreciation, is reckoned at $614.17 a day.

EARNINGS

Freight — outbound — 4,500 tons machinery @ $100 per cwt.		$90,000.00

EXPENSES

Deck Department: Wages, straight	$ 2,470,65	
Wages, overtime	247.06	
Supplies and expenses	429.40	
Engine-room: Wages, straight	2,393.65	
Wages, overtime	239.36	
Supplies and expenses	1,193.22	
Fuel oil	7,831.36	

Steward's department: Wages, straight	1,029.00	
Wages, overtime	102.90	
Supplies and expenses	378,00	
Subsistence	1,512.00	
Other voyage expenses	594.72	
Cargo-handling expenses	18,000.00	
Port charges	4,842.74	
Loss and damage	500.00	
Maintenance	7,140.00	
Insurance	5,083.22	
Depreciation	13,809.21	
Commissions	2,740.00	
Total operating expenses		70,536.49
Earnings from operation of vessel		$19,463.51
Interest at 5 per cent		6,904.60
Net profit		$12,558.91

These figures indicate a net profit of 9 per cent. over a year composed of eight such voyages — a net profit which the income and excess profit taxes probably would reduce to somewhere between 5 and 6 per cent. However, in commercial hands the voyage would probably show better returns, partly because it is not likely that any such depreciation as 10 per cent. would be charged off, and partly because it is likely the vessel would have something in the way of a return cargo.

Regarding the importance of securing a return cargo, a slight modification of the above figures will show some remarkable facts. Had a return cargo been found for the *Magurkook,* her operating expenses would have been increased only by another $18,000 handling charge and perhaps $500 in overtime wages. However, her freight revenue would have been increased from $90,000 to $180,000, and instead of earning $12,500 she would have earned $85,000. Thus the cost of carrying one ton of cargo 3,000 miles would have been reduced from $18 to $10, and the net annual return on the capital cost of the ship would have been increased from 9 per cent. to 56 per cent.

Herein is revealed the wonderful opportunity that awaits the shipowners who are now firmly intrenching themselves in the business, and building up mercantile connections which will provide them with return cargos before competition for west-bound cargos brings the trans-Atlantic rate down to half its present level. Herein also is revealed the duty of American merchants to support American ships, which current reports indicate they have not been doing. Imports of foreign merchandise into the United States during 1919 aggregated the value of $3,000,000,000, and were the largest in our history, both in value and volume. In so far as imports from Europe are concerned, almost 90 per cent. of them came in on board vessels flying the British, Dutch, French, and Belgian flags.

One of the best informed and most earnest advocates of American control of American commerce recently said to the House Committee on Merchant Marine and Fisheries: "I do not know how you can break the grip the foreign steamship companies, bankers, and insurance companies have on American overseas commerce, unless, perhaps, there can be built up in this country a spirit of patriotism such as exists in England, for instance."

Take the case of the $3,000,000,000 worth of imports just cited. The goods represented by this large sum of money become the property of their American purchasers the moment they are purchased. It is the American importer who has the authority to say what marine insurance company shall insure those goods in transit, and what steamship company shall bring them into the United States. In normal times it will be perfectly proper to share this business, as well as the export business, in order that the ships of all nations engaged in trade with us may prosper. But, while the present scarcity of west-bound cargo exists in the North Atlantic trade, every American importer who gives a dollar's worth of business to a foreign steamship company strikes a body blow at the struggling American merchant marine, and through it at the interests of his country's commerce. Until American importers insist upon having their imports carried upon American bills of lading, it will not be possible for any American steamship company to reduce the cost of carrying one ton of cargo from $18 to $10. This is axiomatic.

The successful competition of American ships with foreign ships depends upon such considerations as these, and not upon such details as small differences in the wages of seamen, and the operation of laws that encourage American citizens to follow the sea by guaranteeing them decent food and sanitary living quarters. An examination of the *Magurkook* figures would show that, of the total cost of $10 to move one ton of freight 3,000 miles, only 80 cents is represented by wages, including overtime. If the American wage-scale were doubled to-morrow, the American steamship-owner would not have so much to worry him as he has to-day in the doubt whether or not the merchants of his own country are going to patronize his homeward-bound ships in preference to patronizing the ships of his foreign competitors for American business.[1]

First among the operating economies established by the Shipping Board in the new American merchant marine, is the use of oil fuel. Eighty per cent. of the seagoing ships flying the American flag are, or soon will be, oil-burners. Less than 10 per cent. of the ships flying foreign flags are oil-burners, and the process of converting foreign ships from coal to oil is proceeding very slowly. The installation of oil-burning equipment means something more than putting in extra piping and rearranging furnaces: it also means double-riveting the entire inner bottom and all the fuel-tanks. The overloaded condition of the world's repair-yards, and the impossibility of withdrawing many ships from service at the same time, seems to guarantee to the American merchant marine all the advantages of oil fuel for a period that will be at least as long as the time required by the American merchant marine to establish itself.

The operating economy of oil fuel is threefold: it reduces the number of men in the engineer department; it turns unproductive bunker space into revenue-earning cargo space, and it enables the ship's propelling plant to make and use steam more efficiently than is possible with coal. A recent estimate contemplating the conversion of the *Mauretania* from a coal-burner to an oil-burner indicates that the use of oil would reduce the present engine-room crew from 312 to 27 men. Here is an item of at least $21,000 a month, plus subsistence. However, it is not our purpose to go into the details of operating vessels of the *Mauretania* class — just yet.

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[1] An interesting and authoritative detailed statement of this subject will be found in Appendix.

Consider two cargo vessels of 7,500 dead-weight tons, such as comprise the bulk of the American emergency fleet. They leave New York for Santos, Brazil, calling at way ports. One of them burns coal, and the other burns oil. The coal-burner makes the voyage in 24 days and 8 hours. The oil-burner makes it in 21 days and 13 hours. This saving of 3 days' time is due to an extra knot an hour, made possible by the superior steam-making properties of oil, which compare with the steaming efficiency of coal as 80 to 65. Converted into dollars, these 3 days represent a saving of at least \$1,800 in capital charges, \$300 in wages, and \$300 in fuel. In addition, the oil-burner must be given credit for \$322, representing the wages of 6 fire-room hands for 21½ days at the rate of \$75 a month; for she carries 3 such hands to the coal-burner's 9. Then, there is an excess cargo-carrying capacity of 700 dead-weight tons, due to carrying oil fuel in the double bottom and making the coal-bunker space available for cargo. At 1919 freight rates, the value of this extra space was \$21,000.

But there is an adjustment that must be applied to these figures before a comparative total can be struck. The price of oil fluctuates between \$8 and \$10 on the Atlantic coast, while the price of coal seems prone to hold around at least \$4 a ton. The oil-burning ship consumes 350 tons of fuel on the New York to Santos voyage, while the coal-burner consumes 650 tons. This means that a deduction of about \$900 must be made to cover the greater cost of the oil consumed. The net advantage of oil fuel in this trade, under 1919 conditions, was therefore about \$22,800 each way. If the freight comes down from thirty-odd dollars to fifteen dollars with the return of normal conditions, the advantage of oil fuel will be about $12,300 each way. Nevertheless, even this figure will mean $24,600 competitive leeway for the round voyage. Such a margin can be turned to good account in developing Pan-American commerce.

There have been numerous cases recently in which the installation of oil-burning equipment has increased the operating efficiency of already existing American steamships. By shifting from coal to oil, the steamers *San Juan* and *Ponce,* of the New York and Porto Rico Line, have increased their steaming radius from 3,500 to 6,000 miles, and their cruising speed from 10½ to 12 knots an hour. The size of the engine-room crews carried by these vessels has been reduced by 10 men each, and the dead-weight carrying capacity of each vessel has been increased by 500 tons. Thanks to the use of oil fuel, the 7,500-ton freighter, of which a large number are being built at Hog Island, is enabled to go to sea with the same size crew as the 3,500-ton coal-burning vessel the European shipowners were building in our Great Lakes shipyards at the time the United States entered the Great War. This relation is important, because it indicates an advantage that will be ours in future competition with the famous tramp steamers of northern Europe.

Mention already has been made of the small progress made by European shipping interests in the adoption of oil fuel. It is difficult to understand why this should be so, but it is a fact that in 1918 there were only two ports in the United Kingdom where an oil fuel supply was available to merchant-vessels. As recently as January, 1919, the "Engineer" (London) said editorially: "Although oil has been extensively adopted for naval vessels, yet the merchant-vessel presents a different problem. The navy needs are irrespective of cost, while in the case of merchant-vessels commercial savings are the final criterion."

Less than one month later the same periodical said: "Some interesting comparisons between coal and oil as fuels were made in a paper read before the Birmingham Association of Mechanical Engineers. The points in favor of oil are: Radius of action increased by 50 per cent. on equal bunker weight, or 80 per cent. on equal bunker space; up to 83 per cent. of thermal efficiency instead of 60 per cent.; boilers can be forced up to 50 per cent. above normal rating; reduction of labor by about 70 per cent.; constructional advantages; bunkering at sea. These statements applied to war-ships, but there are many equally attractive advantages in the application of oil to vessels of the mercantile marine."

The Shipping Board has been severely criticized for not selling the vessels of the Emergency Fleet for $125 and $130 a dead-weight ton, as has been done by the British government with some of the so-called standard steamers it built during the war. After considering facts and figures, however, it seems that the British government might not have sold these vessels at such prices had they been oil-burners. An ordinary British tramp steamer burning coal would need a handicap of several dollars a dead-weight ton to place her on competitive parity with an oil-burning American cargo steamer.

Last, but of great operating importance, is the refinement of effecting the quickest turn-around possible in every port the vessel touches. Including allowances for time consumed in lading and unlading, hauling-out periods, repairs, and other unavoidable delays, the well managed ship of former days rarely spent more than 65 per cent. of her life under way. The financial urgency of eliminating every possible idle hour is therefore apparent. Port congestion on both sides of the Atlantic has caused heavy wastage of ships' time ever since 1914. It was estimated early in 1919 that the merchant fleets of the world were delivering only 50 per cent. of their normal efficiency in moving the world's commerce. At that time the average round voyage in the trans-Atlantic trade consumed 67 days. Later in the year some of our Shipping Board vessels began to make the voyage in 34 days. This was a great improvement, for, had it been universal, it would have been equivalent to doubling the number of ships in service, and it would have brought about a very large decrease in the cost of operating the American fleet.

The use of oil has been an influential factor in shortening the turn-around of American ships, for their large steaming radius, compared with that of coal-burners, has eliminated the necessity for bunkering in foreign ports. There is no particular reason why the operation of coaling ship should delay a vessel; for if performed with modern machinery the bunkering can be done while the cargo is being handled. The use of such machinery is not common in European ports, however. In Liverpool, for instance, where the average turn-around of ships has been 14 days for a great many years, the use of coaling machinery is not favored. On this point a report of the United States Shipping Board Port Facilities Commission, entitled "English Port Facilities," says: "Coal companies charge the same price for coaling by hand as by machine. One coal merchant in particular showed aversion to the use of machines, saying that men wear out and other men replace them, whereas machines are a constant source of overhead expense."

The use of modern cargo-handling machinery also shortens the time in port, as well as effecting sharp reductions in wharf and stevedore charges. Quick turn-around also improves the morale and quickens the senses of the entire steamship organization. The management that makes a point of keeping its whole fleet booked slightly in excess of its capacity, and is always striving to trim off an idle ship-hour here and there in order to live up to its obligations, will find that its books show a continuous reduction in the cost of moving one ton of freight a given number of miles — which, after all, is the only road to fortune in any sort of transportation business.

CHAPTER XV

MOTORSHIPS, THE CARGO-CARRIERS OF THE FUTURE

IT has been shown that the use of oil fuel under boilers in an ordinary steam-driven cargo vessel brings about economies that reduce the cost of operation by almost one third. The use of the same or even cheaper fuel in an internal-combustion engine of the Diesel type will strike off another third of the operating cost. This is why I call the motor-ship the cargo-carrier of the future. It is practicable to convert any coal-burning ship into an oil-burner, but it is not possible to convert many existing steamships into motorships. For this reason, and as long as ocean freight rates remain high, there may not be much motor-ship construction during the next few years. Nevertheless, no man engaged in the business of ocean transportation can afford to permit the existence of the motor-ship to escape his memory for a moment.

The first Diesel patent was granted in Germany in 1893, but it was not until 1897 that the first practical commercial Diesel engine was brought out. It was a one-cylinder affair of only 20-brake horsepower; but its remarkable economy and mechanical efficiency won for it enthusiastic adoption as a stationary prime-mover in shops on shore. The holders of the patents granted licenses liberally, and it was not long before many engine-builders throughout Europe were turning out small Diesel units and improving upon the conception as they went along. The chief difference between the Diesel motor and the internal-combustion engine of familiar every-day use lies in the circumstance that the Diesel burns its fuel instead of exploding vapors from it. Pure air only is compressed, and the fuel is not admitted until compression has taken place. The intense heat of the cylinder at this time insures that the fuel will be consumed as rapidly as it is supplied. For this reason, it is not necessary to use the costly volatile distillates: the Diesel motor will take any oil that can be heated thin enough to be pumped.

Diesels were first used to propel ships by the operators of Russian river steamboats, who fitted them with clutches and gearing to attain reversibility of the propeller. It was in this service that the plentiful supply of cooling water available on board ship, as compared with on shore, revealed the fact that the Diesel would make a better marine engine than it had already been proved as a factory motive power. This experience was the incentive that brought out the reversible marine Diesel, and between 1900 and 1910 a large number of river and harbor steamers of northern Europe were fitted with the new motive power.

The first ocean-going motor-ship, *Vulcanus,* was brought out in 1910, equipped with a 450-brake horsepower, 4-cycle Diesel built by Werkspoor (Holland). The vessel was propelled by a single screw, and of course attained only a very moderate speed. However, she is still in service in East Indian waters, and has given satisfactory service continuously for ten years.

Close in the wake of this first bold venture came the *Selandia,* engined by Burmeister & Wain (Denmark) in 1911. This vessel is a 7,400 dead-weight ton cargo ship driven by twin screws, each shaft being fitted with an 8-cylinder, 4-cycle, directly reversible marine Diesel motor of 950-brake horsepower. The vessel has been engaged in long voyages between Europe and the Indies in the service of the East Asiatic Company, and her performance has been so highly satisfactory that the several hundred sea-going motor-ships that have followed her into service have been designed and engined in substantially the same way. There has been a tendency toward larger and fewer cylinders, but almost every other improvement in the marine Diesel has been a matter of mechanical betterment of parts.

In recent years there has been some notable development of the marine Diesel motor in the United States. The highest-powered motor-ships actually built in this country have been engined by the McIntosh & Seymour Company. Although they have not been equipped with motors of greater horsepower than 500 (two each in twin-screw ships), they have given such excellent service that it is assured American motor-ship owners will not have to go to Europe for their engines. The McIntosh & Seymour Company has built some 750-horsepower units for the Shipping Board, and the Skandia Pacific Engine Company has built some 850-horsepower units, also for the Shipping Board. The latter company operates under a Werkspoor patent, but the two engines are very much alike in design. Other American builders of motor-ships are: the New London Ship and Engine Company, which turned out the first marine Diesel produced in the United States; the Dow Pump and Engine Company, which has produced several small ocean-going motor-ships; and the Winton Company, which has installed a large number of 300-horsepower units in coastng vessels. Several large shipyards, like William ramp's and the New York Shipbuilding Company, are repared to undertake the construction of large motorhips.

An excellent and very thorough idea of the comparaive economies of the steam engine using coal fuel and he Diesel motor using any of its wide range of oil fuels, nay be had from the following extracts, taken from the ngineers' log-books of two vessels in the employ of the ame company, and engaged in making the same voyage. The two vessels may be described as follows:

Description of Vessels	Single-screw Steamship	Twin-screw Motor-ship
Length between perpendiculars....	385 feet	410 feet
Molded breadth	53 feet	55 feet
Depth	26 feet	30 feet
Cubic capacity (cubic feet).......	435,400	501,050
Dead-weight carrying capacity ...	8,720 tons	9,500 tons
Bunkers (coal for steamer, oil for motor-ship)	770 tons	1,250 tons
Items of Engine Performance		
Duration of voyage	163 days	182 days
Time at sea (engines working)...	109 days	107 days
Time in port	54 days	74.5 days
Distance run (nautical miles).....	27,808	27,818
Hours of steady propulsion	2,574	2,498
Hours manœuvering	92	82
Mean speed per hour (knots)......	11	11.14
Consumption of fuel per hour (pounds)	384	88.5
Consumption of lubricant per 1 horsepower hour (pounds)	0.00045	0.0036
Consumption of fuel for raising steam	49.6 tons	—
Consumption of fuel for banked fires	31.6 tons	—
Consumption of fuel while under full steam pressure, but not moving	7.8 tons	—

DESCRIPTION OF VESSELS	SINGLE-SCREW STEAMSHIP	TWIN-SCREW MOTOR-SHIP
Consumption of fuel under steady propulsion	4,415.0 tons	1,062.0 tons
Consumption of fuel while manœuvering	71.9 tons	14.7 tons
Consumption of fuel for electric light	59.6 tons	19.0 tons
Consumption of fuel for heating	10.7 tons	.6 tons
Consumption of fuel for winches and pumps	197.6 tons	23.8 tons
Consumption of fuel by main engines	4,544.3 tons	1,076.7 tons
Consumption of fuel by auxiliaries	281.5 tons	43.4 tons
Price of fuel per ton	$5.35	$8.50
Average cargo capacity	7,673 tons	8,670 tons
Number of engineers	3	4
Number of assistant engineers	2	5
Number of oilers	—	4
Number of stokers	14	—
Total engine- and fire-room personnel	19	13
Fuel required to carry 1,000 tons of cargo 1 mile at the speed of 11 knots an hour	50 pounds	10.4 pounds
Cost	$0.12	$0.04

While these figures bring out very clearly the fact that the fuel costs of the motor-ship and the coal-burning steamer compare as 1 to 3, they do not bring out with corresponding force the motor-ship's advantage in the matter of additional cargo space, or of the smaller number of men in the engineers' force. In the comparison between the somewhat smaller vessel burning coal and oil under boilers in the South American trade, it was shown that 700 extra dead-weight tons of cargo space was worth $21,000 each way. In the European-East Asiatic trade the distance is slightly greater; so that it is probably safe to say that the average difference of 1,000 tons between the cargo capacity of the steamer nd of the motor-ship now under consideration is at east $30,000 each way. Three months' pay for six firemen at $75 a month will add another $1,350 to the credit f the motor-ship. The total fuel bills of the two vessels ompare as follows: steamer, $25,818; motor-ship, $9,521, or the round voyage. The total net advantage of the motor-ship, therefore, is about $77,647.

A comparison of the distance traveled, the number of days at sea, and the mean speed show a perceptibly higher average in favor of the motor-ship. This is the direct result of the superior propulsion obtained from he two small screws of the motor-ship as compared with he single large screw of the steamer. In anything heavier than a moderate sea, there is always more or less picking up in the speed of the main engine whenever the ship's stern rises, and a corresponding slowing down as he stern falls again and the whole screw becomes deeply mmersed. In really heavy weather this irregularity assumes the proportions of "racing," and it is frequently necessary for the engineer to keep the throttle in his hands, shutting off and admitting steam alternately in anticipation of the plunges of the ship. The diameter of the single screw is necessarily so great that it is impossible to center the shaft low enough to prevent racing. With twin screws, however, the immersion is better, and the resultant evenness of propulsion produces a very real advantage in miles cruised in the course of a day. Another advantage that manifests itself in the same way is absence of the necessity for cleaning fires on board a motor-ship. Even when cruising in the tropics, the Diesel motor turns over at the same speed hour after hour, day after day, without extra effort on anyone's part at any time or in any circumstances.

A comparison of the fuel consumption figures shows other advantages of the Diesel engine over the steam-engine. On board a motor-ship there are no banked fires; there is no consumption of fuel for raising steam, or for maintaining full steam pressure while awaiting signals from the bridge. Instead, the fuel consumption starts and stops with the main engine, and there are no "stand-by" losses, even while manœuvering the vessel alongside a dock. The economy of the motor-ship auxiliaries is especially marked. On board the steamer there are the inefficient winches and the long lines of piping which waste large quantities of heat. On board the motor-ship the winches and pumps are all motor-driven. In this connection it is interesting to note that a low-power auxiliary Diesel motor shows almost the same fuel economy as the large motor used for propelling the vessel. Furthermore, the Diesel works at relatively high economy under light loads, which circumstance is another factor tending to keep down the fuel consumption of the auxiliaries on board a motor-ship.

Another important point not brought out by the tabulated figures is the fact that on the voyage in question the steamship coaled ten times, while the motor-ship took fuel only twice. It would have been possible for the motor-ship to carry sufficient fuel for the entire voyage, but the experience of the owners has shown that on this particular cruise it is more profitable to purchase in smaller quantities in markets more favorable than the markets of Europe.

One of the noteworthy facts concerning motor-ships that have come to my attention is the circumstance that the motor-ship's most ardent advocate is the shipowner who has had experience with one or two of them. There are several European ship operators who declare they will build no more steamers for freight-carrying purposes. In Europe, and recently also in the United States, one sees motor-ships come and go on regular chedules. The advent of a great smokeless cargo-carrier into a harbor no longer attracts much attention. As time goes on, these vessels are appearing in larger and faster units. Ten thousand dead-weight tons and fourteen knots is not an uncommon combination. I should like to see two hundred such vessels cruising under many quarters: "Why build any more cargo-steamers?" It is my personal belief that some years hence, when ocean freight rates come down, more than one shipowner will wish he had n't.

CHAPTER XVI

THE PROBLEM OF DESPATCH

IN connection with the economical operation of ships, there must also be considered the cost and despatch of the rail haul from point of origin to the seaboard, and the cost and despatch of the seaboard handling of the freight. The money equivalent of these three items combined represents a considerable part of the foreign selling price of exported commodities, and exerts a proportional influence over the producer's profit. Even though the outbound ships be operated with utmost economy, neither shipowner nor exporter can reap the full benefit of the export trade without the support of adequate railroad service and efficient seaboard handling facilities. It is not only the price of the goods that is affected by these things. The sale itself is often predicated upon despatch.

It was the Germans who first showed the world the value of despatch, or rather who first demonstrated to the world the full measure of its value. With their regular, predetermined sailings of fast cargo liners, they moved both their imports and their exports from origin to destination on schedule time and without delay. The competitive advantage they gained from this practice would be difficult to overestimate — even in these days when the rapid turnover of capital is assuming more and more importance in the transaction of business. By reason of the long overland hauls to which so large a part of our imports and exports is subjected, it is important that we bestow a great deal of attention upon the problems of despatch.

Important improvements in the inland routing of overseas commerce were made during the Great War by the Railroad Administration. These changes have brought such cities as Baltimore, Norfolk, Wilmington, Charleston, Savannah, Mobile, New Orleans, Galveston, and Port Arthur into commercial prominence such as they might not otherwise have attained in a generation. All this is in the direction of progress, but the results so far accomplished are small in comparison with the further possibilities that they have revealed. This is especially true of facilities for handling cargo at the seaboard, which is essentially a local enterprise.

Too much cannot be said of the present and future importance of developing the Gulf ports of Mobile, New Orleans, Galveston, and Port Arthur as gateways for the world commerce of the great Mississippi Valley. The wastefulness of shipping this vast tonnage across the mountains and moving it through already congested Atlantic ports is enormous. The area of the Mississippi Valley is about two thirds that of continental United States, and its population is very nearly proportional to its area. The range and volume of its productivity taxes credulity when related to persons who have not seen its fields and factories and who have not watched its commerce move. Its consumption of the products of other regions is likewise enormous. Upon its combined production and consumption is predicated the bulk of the nation's overseas trade.

Germany has demonstrated what a deep area of country with a small coastline can do in the way of handling its own commerce through its own ports. Yet the German ports are not nearly so favored — by natural formation, by climate, or by position with respect to overseas markets — as are the Gulf ports of the Mississippi Valley. The valley's trade with many parts of the world, especially the west coast of South America, China, and Japan, should be routed through the Gulf ports. The United States Steel Corporation has just indicated its appreciation of this need by establishing steamship lines of its own from Mobile to the Far East and from Mobile to Rotterdam. This task is one that belongs to the business men of the valley region, and they will profit greatly when they shall have pushed it through to completion.

At the root of the American export problem lie two fundamental peculiarities. One is the circumstance that a very large part of our export trade is conducted independently by comparatively small firms and by individuals, instead of by large export organizations, as is commonly the case in other countries. The other is the great distance that so often separates our exporters from one another and from the seaboard. These two conditions preclude much of the exchange of information and other forms of coöperation practised elsewhere, and are particularly obstructive in the matter of effecting any sort of organization. The situation is complicated by the fact that so many of the different shipments are small ones, and cannot hope to get, either from the railroads or the steamships, a rate that would compare favorably with the rate accorded large shipments. All of these circumstances point conclusively to the necessity for developing compensating advantages in the form of super-economies in despatch.

In presenting these thoughts, I have in mind the case of the courageous "little fellow," who is striking out for himself in the face of handicaps, and who is not waiting for the government or some other power to intervene and solve his problems for him. It is these men whose present modest establishments will grow into the great, efficient producers of American wealth in the years to come; and the upbuilding of their business should be the concern of every American citizen. The question of whether steel from the Pittsburgh district should go to Japan via New York or via San Francisco has been under lively discussion for two years without being conclusively answered. Yet the sources of steel material are fairly well concentrated, and the exportation of steel is under comparatively unified control. The steel export problem is the quintessence of simplicity in comparison with the problem of small manufacturers of miscellaneous products for export.

The immediate needs of these men and their large total business can best be served in a practical way by some system of routing which will give each small shipment the best despatch possible under the conditions existing at the time the shipment is made. The traffic bureaus that many chambers of commerce have established in recent months may develop into excellent sources of shipping information for this purpose; but nothing whatever can be accomplished until the regular cargo liners of the new American merchant marine are running on their published schedules, and charging freight rates that they will guarantee to maintain for periods of 60 or 90 days.

Then it will be possible to give the small individual exporter an automatic despatch service. The local freight agents of all the railroads might be given authority to issue through bills of lading that would carry shipments of merchandise to a distant foreign destination as expeditiously as the present railroad bill of lading will carry a shipment to a domestic or contiguous foreign destination. There need be no division of the rate in the bill of lading. The ocean rate, obtained from the latest cargo liner tariff, would simply be added to the rail rate to the seaboard. If a shipment from Akron, Ohio, to Rio or Buenos Aires would make better connections by way of New York to-day and by way of New Orleans three days hence, an examination of the railroad connections and the steamship schedules would reveal the fact. A telegram reserving steamship space would then settle the matter, and delays, demurrage, and commissions would become things of the past. The shipment would receive the benefit of the best despatch possible at the moment, and the exporter would receive immediately complete shipping documents, ready for presentation at the bank.

Undoubtedly the establishment of such a system would not be favored at first by the export commission houses, which are now the mainstay of many small American exporters. These houses furnish foreign market intelligence, foreign selling service, and knowledge of shipping details, which the exporter could not reproduce, save at heavy expense. Also, by assembling many small shipments into one large shipment, it is possible for the export commission house to effect a considerable saving. Already these houses complain that many merchants utilize their services while learning the export business, and then desert them. Several of these houses have recently bought ships from the Shipping Board and undertaken to do their patrons' carrying themselves. This new development unquestionably makes the export commission house much more valuable to the exporter, and personally I view the extension of this new development with more interest than almost any other phase of the American merchant marine situation.[1]

Here is one of those situations that arise whenever ocal or individual interests seem to clash with the national interest. In this case, as in all others, the successful solution depends upon the moderation and breadth of vision of all concerned.

It also depends upon the genuine Americanism of all concerned, and in dealing with an export commission house a manufacturer should always take pains to investigate it as carefully as he would investigate any other agent to whom he contemplates intrusting an important part of his business. He should satisfy himself that the export commission house actually maintains foreign offices of its own, in charge of American citizens, and that it is otherwise equipped to render the service it advertises. If the export commission merchant is going to turn the manufacturer's business over to a foreign house resident in the foreign market, the manufacturer might just as well do the same thing himself in the first place, for he will be running the same chance of

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[1] Until the year 1902 the International Harvester Company intrusted its export business to middlemen. Since 1902 it has maintained its own foreign organization. The comparative volumes and costs of its European and South American businesses under the two systems were as follows:

Year	*Business conducted by*	*Sales*	*Selling Expense*	*Per Cent.*
		EUROPE		
1902	Middlemen	$ 1,261,789	$ 139,497	11.0
1912	Own organization ...	23,133,307	6,638,680	28.7
		SOUTH AMERICA		
1902	Middlemen	$ 395,976	$ 24,043	6.1
1912	Own organization ...	4,935,365	329,985	6.7

placing himself at the mercy of his competitor, which is the one greatest thing to avoid in attempting to build a foreign market.

Again, it is important to ascertain whether or not the export commission house is really American, or whether it has any connection with foreign steamship companies. In many instances, foreign steamship companies actively interested in the overseas trade of the United States have incorporated export and import houses under American law, and these houses notoriously will not place a cargo on board an American vessel if they can avoid doing so. No such house should be patronized by any American exporter or importer who has his own and his country's interests at heart.

Another reason why the small American exporter should carefully scrutinize an export commission house before doing business through it is the fact that in every large city there are a number of men who are always ready to set themselves up in some new business which offers the opportunity to take a profit on the turnover of the legitimate life business of other men without giving anything in return. Recent events have attracted men of this class into the import and export business and the steamship agency business, and it goes without saying that no fly-by-night concern of this sort maintains any foreign organization, or has the confidence of anyone or any interest in the welfare of its clients beyond the fees it can collect from them currently. The legitimate import and export houses and the banks are beginning to make the road of such charlatans difficult to travel; but the day when their existence can safely be disregarded by the inexperienced exporter in the interior of the country has not yet arrived.

All this discussion of export commission houses is not really so far removed from the question of despatch as it may seem to be. On the contrary, I believe that the development of the export commission house into a ship-owning and ship-operating organization, and the creation of ties of stock ownership in the whole between the export house and the manufacturers who patronize it month after month, is one of the ultimate consummations that America's return to the sea will bring out. But meanwhile there is no reason why the export commission house should be injured by the use of the railroad through bill of lading, except in a case where the delay in accumulating sufficient cargo to get a lower freight rate would cost the manufacturer more, either in money or in prestige abroad, than the amount of the freight so saved. In such a case, the interests of American commerce as a whole would be better served if the shipment went direct; and the manufacturer, to whom the trade really belongs, is the proper judge of the matter. At least, he is entitled to know the facts in time to permit him to change his plans, should he wish to do so.

With proper coöperation from all interests concerned, it should be possible to devise a railroad-steamship through billing system under which the manufacturer in Akron could operate through an export commission house in New York, and also through a similar house in New Orleans, giving his business sometimes to one and sometimes to the other, according to the course indicated by the despatch conditions existing on the day the shipment is made. Then, on occasion, he could also ship direct. The increase that always comes to an efficiently managed business undoubtedly would benefit everyone concerned, and at the same time the railroads and steamship companies would have the benefit of the higher rate on a certain quantity of package freight which they do not get at all under present conditions, and which everybody seems to have been conspiring to prevent them from getting, with very doubtful results to their own interests.

CHAPTER XVII

AMERICAN INSURANCE FOR AMERICAN SHIPS AND CARGOES

WHOEVER classes and rates your ships determines what sort of ships they shall be, the trade routes in which they may cruise, and the kinds of cargo they may carry. Whoever insures your ships and their cargos lays down the terms and conditions under which your commerce may move upon the ocean. In the past we have been leaving these matters in the hands of other nations, along with the banking and credit arrangements under which our trade was conducted. However, as soon as we begin financing and carrying any considerable part of our commerce, we shall be obliged also to protect its credit and its losses. At sea, as on shore, the prime factors that control trade are banking, transportation, and insurance. The absence of any one of these factors exposes the others to weakness. Without American marine insurance, American commercial independence can never be achieved; and it is even doubtful that an American merchant marine can be kept upon the seas.

In the last five or six years the bankers of the United States have made marvelous progress in extending their facilities for financing American commerce with the more important overseas markets of the world. Since the year 1917 a large fleet of American cargo vessels has come into existence. The development of an adequate

American marine insurance market is our next important objective, and the task is one that calls for the closest coöperation of all who have the interests of the country's trade at heart.

A detailed investigation of the American marine insurance market, conducted since the signing of the armistice by a sub-committee of the House Committee on Merchant Marine and Fisheries, has revealed that about 70 per cent. of the total business, including almost all the overseas business, is in the hands of foreign marine insurance companies; and that after four years of effort the American marine insurance companies had barely succeeded in establishing a foundation upon which to build. The public hearings with which the sub-committee supplemented its investigation brought out the fact that since the outbreak of the war the number of direct-writing American marine insurance companies has increased from twenty-six to fifty-two. These additions represent marine activity by companies that formerly confined their attention to fire and other forms of insurance. They bring into the business new blood, new views, and an independence of traditions, upon which, as I shall show, we shall have to rely heavily for success. The hearings also developed the existence of taxation handicaps and the compounding of legislative restrictions imposed by several of the States, from which the marine insurance business should have been set free many years ago. The four small volumes in which the government printing-office has prepared these hearings for the public contain a wealth of highly important commercial information, and will amply reward careful reading.

It must be remembered that the great bulk of food and supplies that swelled the ocean trade of the United States to unheard-of volume during the war was government-owned and carried in ships that were government-operated. Also, it must be remembered that the ships built and owned by the government were insured in the Shipping Board fund. The business for which the American marine underwriters were competing with such small success, up to the time the Congressional investigation was made, was therefore not materially greater than the amount of business already in the market when their effort began. For this reason, it seems probable that the share of the American marine insurance business written by American companies may have increased since all the business formerly handled by the government has been released to the market; and, with this reservation, the following report of the sub-committee can be taken to summarize existing conditions:

> Marine risks written and renewed during 1918 by all companies operating in the United States amounted to $71,258,305,186. Branch offices of foreign companies admitted to do business in the United States wrote or renewed $23,400,821,248, or 32.8 per cent. of this total. American companies controlled by or very closely allied with foreign companies wrote $9,244,010,588, or 13 per cent. Other American companies wrote $38,613,473,250, or 54.2 per cent.
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> For the same year the total marine premiums of all American and foreign companies operating in the United States aggregated $108,648,129. Of this total, branch offices of admitted foreign companies received $39,450,085, or 36.3 per cent. American companies controlled by or very closely allied with foreign companies received $6,483,383, or 6 per cent. The uncontrolled American companies received $62,714,671, or 57.7 per cent.
>
> But the committee has information that at least 20 per cent.

of all the marine insurance business originating in this country is exported directly by merchants and brokers to the home offices of foreign companies, many of which are not admitted to do business in the United States. Moreover, considerable marine insurance business originating abroad is reinsured in the American market, and this amount appears in the records of the American companies, although it is not American business.

The volume of American marine insurance business has increased greatly between 1913 and 1918, but the relative importance of foreign and domestic companies seems not to have changed materially during the period. Such changes as have occurred in this respect seem to have been in the direction of increased foreign control.

In view of the great national importance of marine insurance at the present time, and of some astonishing facts brought to light by the experience of the Shipping Board, I feel that I should develop the whole subject in an analytical way before attempting to discuss its present aspects and its hopes for the future.

In the days when the ships of Barcelona, Genoa, and Venice traded with the Levant, Africa, and the Indies, there was no such thing as ship classification, and there was no organized marine insurance. Each vessel was an entity in itself; each voyage a venture in which the shipowner and the shippers of goods were regarded as partners. Nevertheless, the matter of compensation for loss was given careful attention, and merchants often sent representatives along with their goods to look after their interests in this respect.

If the ship were knocked down in a gale, and it proved necessary to cut away the masts in order to save ship and cargo, all concerned contributed toward reconditioning the vessel, each in proportion to his financial interest in the entire venture. In like manner, all contributed to pay for cargo jettisoned to save the ship. The practice was based upon the theory that one partner has sacrificed part of his property in the interest of all; therefore, all should be assessed equitably in order to reimburse him. The assessment was called a "general average," "average" being a corruption of a Florentine word meaning loss.

If, on the other hand, a mast and its sail were blown away in consequence of any fault of the master of the vessel, or if sea water came on board and damaged cargo belonging to any one merchant, the circumstance was regarded as a matter of bad luck, and the loss lay where it fell. Such a loss was known as a "particular average." There was no provision to protect anyone from total loss of ship and cargo.

Modern marine insurance is a development, and its rules and practices cannot in any sense be regarded as the product of design. It originated at, or rather crystallized around, the London Lloyd's as naturally as the practice of ship classification for insurance purposes crystallized and developed in the same manner and at the same place. Before the days of marine insurance, side-bets at the tables of Edward Lloyd's tavern reflected the judgment of this or that merchant concerning the probable success or failure of different ventures under discussion. The length of time on voyage, or the safe return of this or that overdue ship, were common topics of speculation. Here was assembled the most competent expert opinion on earth in such matters, and enterprising souls were quick to see the possibilities of turning the merchants' bets into short-term investments by pooling them and using the pool as assurance against loss. The betting merchants became Lloyd's underwriters, and the enterprising persons who offered them the opportunities to make so many pounds per cent. upon any risk they might care to assume became Lloyd's brokers.

This system is in operation to-day, and its business is transacted in exactly the same manner. Now, as in the beginning, every Lloyd's underwriter is an individual. Corporations are not admitted to underwrite at Lloyd's, although they may become limited members, participating in the benefits of Lloyd's maritime news service. The individual underwriters sit at desks in a huge room called the "floor." Duly "admitted" Lloyd's brokers bring to them the risks they wish to place for their clients. The different underwriters specialize in different classes of business, and lifelong experience has made them amazingly familiar not only with the hazards of one or more trades, but also with the individual merchants and ships engaged in them. The brokers offer their risks to one underwriter after another, and usually the underwriters accept or decline offhand. One underwriter may sign for £50 at a certain premium rate in pounds per hundred; another may sign for £100; and so on until the whole valuation, or as much of it as possible, is covered. A single Lloyd's policy may bear 500 signatures.

As this business grew, information concerning ships came more and more into demand, and Lloyd's Register of Shipping sprang into existence to supply this need. Its activities have expanded steadily to meet the growing demands of shipowners, ship-builders, and marine underwriters. The Register examines and approves or disapproves the scantlings of new ships, and its inspectors watch the progress of, and test all materials entering into, new construction that the society has been employed to classify and rate. Its present size is enormous, and its influence in the entire field of international commerce is very great.

In the United States we have nothing resembling Lloyd's insurance — not even the news-gathering feature. With us, the business of merchandising and the business of ship operation separated from each other many years later than with the English, and on this account our marine insurance business developed along the more modern British line of underwriting marine risks with large corporations. Very few of these corporations confine their operations to writing marine risks. It is usual for them to do fire and other kinds of underwriting as well.

However, our ship-classification society is a close reproduction of Lloyd's Register of Shipping. Its title is the American Bureau of Shipping, although it sometimes uses its other corporate name, the American Lloyds. The bureau came into existence in its present form soon after the Civil War; but at the entry of the United States into the World War, it was classifying only 8 per cent. of the shipping under construction in American yards. With almost no exception, the other 92 per cent. of our shipping was in the hands of Lloyd's Register. To-day 68 per cent. of the greatly increased American merchant marine is being classed and rated by the American Bureau of Shipping, and 32 per cent. by the British Lloyd's Register of Shipping.

The underlying principle of marine insurance, as laid down in the preamble of an act of the British Parliament dated 1601, was:

> Time out of mind among merchants everywhere when they make any great adventure, especially into remote parts, it has been custom to give some consideration of money to other persons, commonly in large number, to have assurance made of their goods, merchandise, ships, *et cetera,* at specified rate; so that when there is loss of any kind there followeth not the undoing of any man, but rather the loss lighteth easily upon many than heavily upon few, and rather upon those that adventure not than upon those that do adventure; whereby all merchants, especially the younger sort, are allured to venture more willingly and more freely.

This quaint document virtually defines marine insurance as a public service enterprise, and it was the plain intention of the British government that the speculations of "those who venture not" should not be permitted to take toll from commerce unless they rendered helpful service to commerce. The system in vogue in the United States prior to our Civil War [1] conformed closely to this requirement; and, in theory at least, the Lloyd's underwriters still maintained a semblance of the old idealism. But why is it that in the old days, when ships were frail and ocean voyages perilous, small sailing-craft used to make snug fortunes for their owners in a single trip, while to-day great fleets of powerful steamships claim they cannot eke out an existence without the aid of a government subsidy? Unquestionably a large part of the answer to this question may be found in the following facts:

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[1] In the days when the old American merchant marine was in the zenith of its glory, our merchant-shipowners used to pool their marine hazards among themselves and their friends. Eleven of them, say, would combine to underwrite a twelfth one's venture, taking his one-year note for the premium, and discounting the note at a local bank. There was nothing in this sort of business to attract a foreign underwriter three thousand miles; so, until values involved in individual voyages began to outgrow local underwriting resources, American commerce managed to keep clear of the influence of the great marine underwriting corporations that were gaining control of the business elsewhere throughout the world.

The development of the great marine underwriting corporation has been accompanied by a wholesale standardization of the marine insurance business. As the years passed by, the underwriter has become less and less a coöperating friend of the merchant and the shipowner, and more and more an unsympathetic taskmaster. As the size of the underwriting units increased, their operations extended over increasing areas. The cable came into extensive use. The underwriters were called upon to quote rates at a moment's notice for vessels and voyages of which they had never even heard before. It soon became impossible to make personal estimate of the different risks, and, instead of subdividing the business so that it could be intelligently administered, the great new companies met the situation by enforcing a system of standardization. Elaborate statistics of safe and disastrous voyages were compiled, and the classification societies were called in to furnish technical advice about the extent to which standardization could be enforced with respect to the design and equipment of ships. Thus the free operation of ships became a thing of the past, and a business that is governed more by "personal equation" than any other business on earth was forced under the arbitrary control of tables of statistics and records of past performances.

At the time the United States entered the World War the rigidity and backward-looking character of the classification and insurance requirements were amazing. We had not enough anchor-chain in the country to equip all the emergency vessels in conformity with the rules of Lloyd's Register and the American Bureau of Shipping. Neither had we enough anchors to provide each ship with the required spare bower. It developed that the anchor-and-chain requirements had not been revised since the days when ships did not often lie alongside wharves, when lofty masts and yards stopped the wind and made holding difficult at times — days when ships lying at anchor in a gale had no engines with which to steam up to their anchors. Nevertheless, after prolonged negotiations, the classification societies made only small concessions in the chain requirements. The American Bureau of Shipping finally did consent to the omission of the long obsolete spare bow-anchor, but to this day Lloyd's Register of Shipping has steadfastly refused to do so.

Nothing short of the war necessities of England and the United States could have secured even these slight concessions from the requirements of the classification statistics, the iron-clad dictates of the past. Ninety per cent. of the anchor-chain carried by a modern merchant-ship never sees the light of day, except when it is hauled out for the periodical survey imposed by the classification rules. Yet every merchant-ship in the world is obliged to carry many tons of this excess baggage in space that otherwise might be used to carry revenue-earning cargo. Personally, I am curious to see how soon the marine insurance companies will veto the war concessions of the classification societies, and send the private owners of some of our emergency ships into the market buying fifth wheels for their new coaches. The matter has not yet come before them, because as long as the vessels remain property of the government the Shipping Board carries their hull insurance in its own fund.

However, the restrictions imposed upon ship construction are not so important as those universally imposed upon ship operation. A glance at a dozen or so hull and machinery policies, British, American, Norwegian, Dutch, or any other nationality, will show some remarkable limitations. It is almost invariably stipulated that the vessel may cruise in certain bodies of water only at certain seasons of the year; that she may not enter certain other bodies of water at all; and that she is warranted not to go north of a certain parallel of north latitude, or south of a certain parallel of south latitude, at any time or in any circumstances.

A moment's reflection will suffice to show the throttling effect of these restrictions upon the extension and development of commerce. Their tendency is to standardize steamer tracks and trade routes, and to oblige all vessels to adhere closely to these routes. No doubt the original idea of these restrictions was the promotion of safety; and, if this is so, the restrictions have long since grown out of date and are now defeating their own object. You may promote safety by causing sailing vessels to adhere closely to standard ocean routes, but the same restriction imposed upon steamers tends to increase the danger of disastrous collisions rather than to promote safety. The same thing holds true of the danger from ice, which no doubt was another influential factor in causing the insurance companies to impose these restrictions.

On both these points the experience of the United States Shipping Board has demonstrated that with modern steamships the imposition of such restrictions is unnecessary to profitable underwriting. Every one of our thousand-odd vessels cruised day and night throughout the war period, and for a year after the war, under policies that gave them "world limits." The conditions under which they operated were far more unfavorable than any conditions existing in normal times. Moreover, many of them were in charge of half-trained officers and green crews. They ran in and out of Vladivostok and Archangel until the ice became so solid that it drove them away. Yet the financial results of the underwriting were highly satisfactory.

And then, there is still another aspect to these standardized trade routes. Their natural corollary is standardized ocean terminals, which in turn means the crowding into a few ports of the commerce that naturally would be distributed among many ports. This, in turn, means unnecessary coastwise hauls, port congestion, slow turn-around, and unnecessarily keen competition among steamship companies. Also, the common insurance practice of refusing to underwrite on any terms a vessel that contemplates entering harbors that are not well charted and buoyed, or that do not afford full protection in heavy weather, tends to check the development of trade with new parts of the world. Altogether, the whole story is strongly suggestive of the fable of the goose that laid golden eggs.

Here, indeed, is a green field for American enterprise — a field not limited to the boundaries of the United States, nor even by the boundaries of the countries with which the United States now trades. Marine insurance is a business transacted as frequently by cable as by word of mouth, and anyone who contemplates entering it must contemplate doing business all over the world at once, or he had better stay out of it altogether. The insignificant position occupied by the American companies in 1918, after four years of effort to break their way into their own country's ocean marine business, is a fine example of the weakness of the underwriter who keeps all his eggs in one basket. It is also a fine example of the weakness of the underwriter who relies absolutely upon statistics.

From the cosmopolitan nature of the marine insurance business, it is obviously impossible to collect actuarial records sufficiently varied or up-to-date to warrant reliance upon them, except in a general way. No doubt reliance upon statistics limits losses. So does staying out of the business altogether. The experience of our marine underwriters demonstrates that, in attempting to compete with foreign underwriters, these two methods of limiting losses amount to the same thing in the end.

The most impressive feature of the testimony of all the experienced American marine underwriters before the House Committee on Merchant Marine and Fisheries was their rigid adherence to their statistics. If a foreign company cuts a rate they have made on the strength of their records, they do not ordinarily meet the cut. Their attitude is, " If that is his price, let him have it. The more business he gets at that rate, the sooner will he find out what it costs." The record shows that millions of dollars' worth of business have gone abroad in this way, but it does not show that one dollar's worth of such business ever has come back because the foreigner had made any mistake about the cost of doing it.

This absolute dependence of our underwriters upon the actuarial records of the past is the more remarkable because they understand perfectly well that the most notoriously successful marine underwriters in the world place no such dependence upon statistics, but rather that they base their judgments of risks upon their intimate knowledge of the trades, and upon up-to-the-minute news, which they go to great expense and maintain a world-wide organization to collect. Here is a verbatim quotation from the testimony of one of the oldest and most experienced marine underwriters in the United States:

> Lloyd's, I think, keep little or no statistics. A great deal of business is done in the hat, you might say, as far as Lloyd's underwriters are concerned. If the business is being carried on at less than cost, it shows up quickly in our records. We know it, and we apply the remedy. But Lloyd's underwriters look upon a broker's account as a whole, and a business which entails heavy losses can be carried at Lloyd's for a very long time without any one being the wiser, so long as Mr. Broker's total gross business of all kinds shows a profit.

In a few words, this underwriter explained what I have taken a whole chapter to try to bring out. If the commerce of the country is to grow in the future, there must be insurance for a certain percentage of ventures that are held to be doubtful, as well as for those the successful outcome of which is assured in advance. This is axiomatic.

Then, too, a different conception of public service enterprises exists in this country to-day from the old-time conception which used to prevail, that every man's business is his own affair. If our marine insurance market fails to spread out its risks, and otherwise to equip itself so it can carry a reasonable quantity of doubtful risks, thus aiding the development of trade as well as taking toll from it, I do not believe it will be held that our marine underwriters have fulfilled their public duty.

Furthermore, if our marine underwriters are going to hold our merchants and shipowners down to the " sure things " of commerce, I am not certain but that we may as well go on depending upon foreign insurance, as we have been doing in the past. If our merchants had refused to do business without first scrutinizing their customers' credit ratings as carefully as our marine underwriters insist upon scrutinizing the loss records of their customers' trades, it is not probable that we should have developed any more export trade than we have developed marine insurance business. Yet credit records and loss records are very similar, both in character and in the ratio of earnings to risk involved. In either case, the amount of the risk assumed is the value of the merchandise, and the possible reward is a fixed percentage of this value. If there is any difference at all, the advantage lies with the insurance man, partly because his customer is within investigating reach, and partly because he collects his earnings in advance.

All things considered, an attempt to insure by statistics is nothing more nor less than an attempt to use the cost-accounting methods of the manufacturer in the insurance business. In manufacturing, it is not only desirable, but generally necessary, to make every operation pay for itself independently of every other operation. I cannot see how such a thing can be possible in the insurance business, to say nothing about making it the rule. It is my impression that the science of underwriting consists of distributing risks so that the law of probabilities will keep the total outgo for loss and damage claims less than the premium income by a margin wide enough to pay expenses and leave a profit.

The most self-evident thing in the whole marine insurance problem is that a number of ancient tenets must be thrown overboard before we can hope to make any progress in winning the control of our marine insurance business. The next ranking item of importance is the suggestion that American marine insurance be made more attractive than foreign marine insurance by freeing it from some of the shackles that the Shipping Board's experience has proved are unnecessary. This should make an insurance policy something a merchant or a shipowner would be anxious to buy as a helpful adjunct to his business, instead of something that he regards as a necessary evil for which he has to pay.

Viewing the situation as a whole, a great many strong factors have favored the American marine underwriters since the Congressional inquiry of 1918.

In the cargo field, our imports in 1919 were by a wide margin the largest in our history. Those goods were the property of American citizens from the moment they were purchased. Therefore American citizens had the authority to select the underwriters who covered the goods into the United States. It is to be taken for granted that our marine underwriters got as much of that business as possible. Also, our exports were the largest in our history. Surely, our marine underwriters called upon our banks, our exporting merchants, and our export commission houses, to aid them in inducing foreign importers to cover some of their purchases with American policies, and surely they met with some measure of success.

Another circumstance that has been favoring American marine underwriters in constantly increasing proportions for some time has been the steady fall of the foreign exchange rates. This should be a strong argument to induce both American and foreign shippers of merchandise to take out their marine insurance with American companies, because, in event of loss, it would certainly be advantageous for them to be able to collect in American dollars.

Finally, there seems to be no doubt that the American marine insurance companies are able to compete with European marine insurance companies for any business in the world, alleged handicaps and the statistics of bygone days to the contrary notwithstanding. Proof of this is seen in the Congressional report showing that our companies are reinsuring a large amount of European underwriting. If it is possible for our companies to make money guaranteeing the underwriting done by their competitors, it follows that they can make money doing that same underwriting in the first instance and on the same terms. In fact, they will be committing slow suicide if they continue doing the one without also doing the other.

In the hull and machinery field, the experienced British underwriters gave our companies at least one very pointed suggestion between 1916 and 1919. They increased the premium rate on British hulls by from 10 to 15 per cent. on two separate occasions, the rate on American hulls remaining unchanged. The only assignable reason for this action is that the British companies want all the American hull business they can get. They have on their hands a losing proposition in the badly run-down fleets of Europe, and they naturally wish to carry the insurance on a fleet of new vessels, which will not be sending in large repair claims at the end of each voyage.

This coveted fleet is now offered to American marine underwriters as the nucleus upon which to build their hull business. Shipping Board experience has demonstrated what a wonderful opportunity this is. Its records show that for two years more than 1,000 American hulls (including the unsatisfactory wood ships) were carried at a valuation exceeding $1,000,000,000, at rates ranging between 25 and 30 per cent. below the commercial market, at a net profit of 6 per cent. It is true that this accounting does not allow for office rent, taxes, brokers' commissions, and inspection and survey fees. Nevertheless, when it is remembered that the vessels covered were largely in unskilled hands; that they were operated free from the customary cruising and cargo limitations, at a time when conditions were more unfavorable than any conditions likely ever to be encountered again; and also that the rate charged was only about two thirds what the commercial companies were charging, it becomes evident that the hulls of the new American merchant marine are an underwriting asset of great value.

Altogether, the least that can be said of the marine insurance situation in these days of world-wide readjustments is that the American marine underwriters have within their grasp the opportunity of the ages to establish themselves in their rightful place in the world. Their success or their failure lies chiefly in their own hands. They are the men who know the business. If they secure the coöperation of their fellow countrymen, who do not know the business, their success will be assured. If they do not, they will fail. And if they fail, American commerce will fail with them.

CHAPTER XVIII

REACTION OF SHIPS UPON NATIONAL INDUSTRIES

COMMERCE begets industry. England, originally agricultural, learned manufacturing by handling the manufactures of other nations. In modern times agriculture has been discarded, and the country has become so thoroughly industrialized that 80 per cent. of its exports are manufactured products. But the British have never ceased to expand the merchandising business through which they became an industrial people. Most of the prestige that has helped sell British goods and brought to England much of her wealth, arises from the fact that for centuries British ships have made Britain the market-place of the world.[1] Germany emulated the British example, and likewise acquired industrial wealth and commercial power.

The principle upon which successful maritime nations have developed their commercial strength is the same principle upon which the American department-store and mail-order business have been built. It is intensive merchandising, supported by a credit, insurance, and delivery service so complete that the purchaser need concern himself with nothing but the selection of his goods. Such market-places serve all nations, and they derive income from all nations. Moreover, they stimulate the development of native industries along the most advanced lines. The world needs more such market-places, as was demonstrated by the success of Germany's enterprise, conducted away off in a corner of the North Sea, far from the beaten path of world trade.

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[1] Just before the outbreak of the World War, 52 per cent. of the overseas commerce of the world was carried in British ships. The percentage of the total ship tonnage engaged in various trades that flew the British flag was as follows: between United Kingdom and British possessions, 90; between British overseas possessions, 80; between United Kingdom and foreign countries, 53; between British overseas possessions and foreign countries, 50; between foreign countries, 24.

With the idea of developing both the foreign commerce and the domestic industries of the United States symmetrically, there have been proposed many enterprises that would tend to establish at least one international market-place on this continent. Chicago, San Francisco, New York, and New Orleans, any of them or all of them, might easily become international market-places. The trade is already being carried on — $10,000,000,000 worth of it in 1919, for instance. What is needed is to bring buyer and seller together in the market-place where the trade belongs. It is not a matter of creating anything, but rather a problem of rearrangement.

Heretofore it has been impossible to do anything along these lines because of the absence of dynamic popular interest in foreign trade, and because of the lack of American ships. Now our business men are awake to many of their foreign opportunities, and we have in the water a fleet of merchant-ships aggregating 25 per cent. of the world's sea-going tonnage. In 1919 these ships carried 28 per cent. of our total foreign commerce. In 1920 it is estimated they should carry 45 per cent. We are not only in a position to act, but the distorted condition of our foreign debits and credits is going to compel us to act.

Our South American purchases, for instance, have exceeded our South American sales by between $75,000,000 and $150,000,000 a year for many years, and our trade with Asiatic countries has shown a steadily increasing excess of purchases over sales of from $161,000,000 to $208,000,000 a year since 1913. In the past we have settled these balances by shipments of gold, and by allowing Europe to supply manufactured products for which we paid by giving Europe our raw materials. Now even that uneconomic and undesirable method of settlement is no longer practical, and the situation is daily becoming more acute.

For the time being, the position of the United States is a peculiar one. On the east lie debtor nations seeking further credits with which to reëstablish themselves as world powers. To the west and south lie former customers of our present debtors who are now our creditors. We must not permit the pressure of one to distract our attention from the other. The interest of each group is of great importance to us. We must meet the demands of both. But now that we have ships, we must not permit our trade with South America and Asia to relapse into its former state. We must balance it now, and we must do so with American goods.

Necessity will need but little assistance in taking care of some of this business at present, but the trade will never grow to its full possible size without cultivation. Moreover, it is certain to slip away from us again, unless positive steps are taken to insure its permanency. The American firms that are employing former foreign agents in South American and Asiatic territory realize, of course, that they are doing only a temporary business. Others, who are sending out their own men, must realize that the outposts they are establishing can never be withdrawn, but, on the other hand, must be strengthened from time to time. However, these individual efforts, in their present or prospective numbers, are not going to achieve national results unaided. Permanent national results call for organized and sustained coöperation at home among producers, merchants, bankers, and ships. On the world market-place principle, and as demonstrated by our mail-order houses and department-stores, the way to enable the whole organization to work upon the outside customer is to bring him personally into your territory.

It is well known that a foreign customer is never permanently attached to the commercial destiny of another nation unless he and his countrymen have a direct interest in and some measure of personal contact with that nation. The mere fact that the United States buys much Chinese tea and much Brazilian coffee gets us no export business to China and Brazil. But if the United States were to become a great sorting, grading, and distributing point for Chinese tea and rice and Brazilian coffee and rubber, the consequent community of interests and the repeated visits of important business men from China and Brazil unquestionably would cause China and Brazil to do a large part of their international shopping in the United States. And the same thing would be true of the merchants of all other nations affected.

The way to create these beneficial conditions at one stroke is to enact legislation authorizing the establishment of foreign trade zones, better known as "free ports," at every American seaport where overseas commerce is carried on and where a suitable site for such a one is available. These foreign trade zones would be ater-front property well supplied with wharves, ware- ouses, and belt-line railroad connections, walled in on he land side and carefully guarded. Into them could e brought, and from them could be taken, by sea, mer- handise of any description without the payment of uty — even subject to the drawback privilege now ranted to reëxported goods. While lying in the ware- ouse of the zone, bulk materials could be cleaned, orted, and graded. All goods would be open to inspec- ion by prospective purchasers, either foreign or domes- ic. If any of them were purchased by citizens of the nited States for domestic consumption, duty would be aid on them as they passed through the wall on the and side of the zone. Otherwise, they would be as free o go to sea again as if they never had been landed.

In this way the rice of China, French Indo-China, and Siam could be brought to San Francisco, New Orleans, Norfolk, Philadelphia, or New York in patty, or unhulled, form; there to be graded, sorted, and cleaned, ready for distribution throughout the world, while the American vessel that brought it from the Orient proceeded to another wharf, either within or without the zone, to load immediately with a new outbound cargo. I cite rice particularly because, ridiculous as it may seem, this material has always been transported all the way from the Orient to Hamburg for this identical purpose. In the old days American merchants were the original purveyors of rice to South American countries; but our vessels sailing to and from the Orient were not able to bring the rice back with them for delivery to South America. This was because the rice wanted in Latin America was of a grade not available in the markets of the Orient. It could be had nowhere except at Hamburg, and there we were obliged to send our vessels for it. It was on this account that the English were able to take the business away from us, and that later the Germans were able to take it away from the English.

The logical place to center this world business in rice is right here in the United States, midway between all the consumptive markets; and the same thing is true of tea and a great many other products of the Orient. There is no question about our being able to get a tremendous quantity of this business; and, what is more, we do not have to go outside our own Oriental possessions to get the wherewithal for a good running start.

Copra, indigenous to the Philippines, is a commodity to which but little attention ever was paid before the war. Its use was confined chiefly to the manufacture of toilet articles, and the only places in the Western world where it enjoyed a market were Hamburg and Marseilles. Even as long ago as 1911, it commanded a price of $12 a hundredweight. Along with other vegetable fats and oils, its price has been sent to several times the old figure by the war-born demand for food fats. The steadily diminishing size of the world's animal herds seems to guarantee copra a large and wide future market. One American company, a Philadelphia concern, I believe, is building up a business in copra. Otherwise nothing is being done about it.

Then, too, the Philippines contain millions of feet of hardwood, and the price of hardwood is mounting every day. They also contain hemp, dye-woods, spices, minerals, and rubber-growing possibilities. The same thing is true of all the South Sea Islands where our forefathers developed so remunerative a trade a century or more ago. Moreover, none of this business is in the hands of the foreign trade syndicates of our competitors. It is as free as the air, and its development awaits only the advent of enterprising Americans in American ships. Some of it is even as romantic as it used to be three generations ago. The native producers of many of these bulk products would much rather have beads, red calico, gilt mirrors, and alarm-clocks than any amount of money.

I have cited the products of the Philippines particularly because the development of Philippine industries is very important to us. The port of Manila is the key and the strategic base of operations for the whole Oriental trade from Shanghai to Arabia. The development of a great transhipment center, and the constant availability of outward cargos at Manila, would be an inestimable boon to the efficient and economical operation of American merchant-ships in the Far Eastern trade. The system would include the use of some of our largest and fastest liners in the run between continental United States and Manila, and the use of 4,000-, 5,000- and 6,000-ton vessels in routes radiating from Manila to all parts of the Orient.

It is equally true, and from the Western Hemisphere viewpoint highly desirable, that the wool, hides, grains, rubber, coffee, cocoa, and cotton of South America, as well as the varied products of Central America and the West Indies, be graded and distributed at the same places and in the same manner. Latin American countries are large consumers of Oriental goods, and such reshipment business as we can get from the Orient would aid immensely in the economical conduct of our trade with Latin America.

Our chief obstacle in operating ships between the United States and South America, arises from the difficulty of finding enough south-bound cargo to fill the south-bound ships. There is never any trouble about finding a full cargo for the return voyage. This is because, as importers, none of the South American ports from which we bring full cargos is a full cargo port. But if we had for reshipment to South America a large variety of Asiatic and other products with which to supplement our own primary exports, there would be no trouble finding an extra fifty tons for this ship, an extra hundred for that ship, or perhaps an extra thousand for another ship — whatever might be needed to load her full. Such a resource, like the proposed transhipment port at Manila, would be a material aid to the American merchant marine in the prosecution of its great work of developing American commerce.

By making and keeping these foreign trade zones absolutely clear of the operations of the American tariff, the great market-places of the Orient, the Levant, and other distant countries would be transferred to the United States. Persons who otherwise would buy their goods in Singapore, Bangkok, Colombo, or Siam, will come to the exhibit of these goods in the American zones. Among them will be our Canadian neighbors, who are our very best customers, and the merchants of Cuba, Central America, South America, and many other parts of the world. They will come because our zones will really be the best markets in which they can buy. In them the buyer will be able to inspect the goods he is buying, and to transact his business direct instead of paying commissions to intermediaries. Also, the complications of distance and time, and the problem of seuring a vessel to take home his purchases, will be solved for him.

A logical parallel development that should come along with the free zone is the specialized world market-place for American products. More agricultural machinery is made in the United States than everywhere else in the world put together. The same thing is true of machine tools, which are essentially an American institution. But where is the world market for agricultural machinery or machine tools? Where does a foreign planter or manufacturer go when he wants such equipment? He goes to a local agency — if there happens to be one at hand. If he finds he is obliged to buy something he has not seen and for which he has to wait, he naturally prefers to buy from some place nearer at hand than the United States, if possible. But if it were known all over the world that the great market-place for farm machinery was, say, Chicago, and that the great market-place for machine tools was, say, Cleveland, then it would also be known that the equipment purchased in those places was standard equipment obtainable at so many days' notice, and the American makers of such equipment would get a great many more foreign orders. The same thing would be true of shoes, ready-made clothing, and many other articles in which American producers excel. Moreover, the foreign merchants coming to this country in connection with business transacted at the free zones would naturally visit, help build up, and spread the fame of whatever cities we might elect to set up as our great market-places for this, that, or the other American product.

In sitting down to write about the reaction of ships upon national industries, I did not contemplate a secondary reaction of the things I was going to write about upon the ships themselves. Nevertheless, there is such a secondary reaction, and it is very important. One of the chief difficulties in the way of maintaining a merchant marine under the American flag lies in the fact that the United States is essentially an exporting nation, rather than a nation whose imports and exports strike a tonnage balance sufficiently close to enable ships engaged principally in carrying our commerce to count on full cargos both ways. In the chapter on the economical operation of ships I showed that every ton of merchandise that comes into the United States on board a foreign ship does so at great cost to the American merchant marine at the present time. The absence of return cargos in many trade routes, under ordinary conditions, will cause our ships to make many triangular, often polygon, voyages in order to keep the hold full of cargo as much as possible on the return voyage. This is very good business for tramp steamers, but it is prejudicial to the establishment of regular lines. The introduction of the free zone system in the United States would alleviate this disadvantage materially, inasmuch as our vessels would then be able to pick up return cargos for reëxport in almost any part of the world at any time.

There is a great deal of opposition to the establishment of the free zone system in the United States, but it is the short-sighted opposition that proceeds from terminal companies and others who imagine that in some way the existence of the free zones would work them injury. The same sort of opposition usually attends and retards every progressive step taken by mankind; but, in the long run, anything that increases commerce as a whole works to the benefit of every interest engaged in commerce. The workers who smashed the first mechanical ooms soon learned to regard the introduction of weaving machinery as the greatest material blessing that ever befell them. And so it will prove with the free zone for receiving and reshipping goods in the foreign trade, exactly as the same enterprise has turned out in other countries. This is one of the things I had in mind when I wrote that, in the development of the foreign commerce and merchant marine of the United States, there is as much educational, pioneer, and organization work to be done at home as there is to be done abroad.

CHAPTER XIX

AN AMERICAN PERSONNEL FOR AMERICAN SHIPS AND COMMERCE

ON shore every science, art, and industry has its hall of fame. School-boys can repeat to you the life-stories of wizards, creators of classics, captains of industry, and financiers. But you may search the world without bringing to light the names of many dominant figures in the field of ocean transportation and foreign trade. Even after you had compiled such a list, you would find that most of the best known names were not those of merchants or ship-operating executives, but of financiers and organizers who have brought great operating companies into being, and have occupied more or less supervisory positions at their heads.

This submersion of personality emphasizes the organization character of the work. A ship at sea is a miniature world in herself. Her successful operation — even her safety — depends upon the masterful coordination of many lines of human endeavor. And the same thing is true of the negotiation, selection, and shipment of the cargo she carries. Besides a large corps of trained specialists, each steamship and foreign trade organization must have at its disposal a staff of men who command great reservoirs of the most unheard-of information, as well as an efficient intelligence service covering its foreign field. One of the most serious American commercial problems to-day is the discovery and development of such a personnel.

In the Shipping Board we gave much thought to this problem as soon as the cessation of hostilities permitted us to bestow some attention upon matters that were not urgent war needs. We knew that, although the country might be combed ever so carefully, the men we needed would not be forthcoming, because they simply did not exist. The idea of getting trained men from Europe was manifestly out of the question, although I believe some of our steamship companies and export and import houses have done this on a considerable scale.

The large amount of export business that had been carried on since 1915 had developed a great many more trained men than we should have been able to muster at any other time in our history. Upon these men we had drawn heavily during the war, however, and many of them were already operating one, two, six, or a dozen cargo steamers for government account, as Shipping Board agents or managers. Without such men we should have been helpless, and I am happy to say that, with astonishingly few exceptions, they have developed rapidly into excellent steamship operators. They have brought into the business a spirit of salesmanship and a desire to take a hand in promoting trade — a trait not common among conventional steamship men of the old school, but one that we took pains to encourage as much as possible. It has been the aim of the Shipping Board to assign to these new operators as many vessels running in one trade route as possible, with the idea of ultimately turning over to each of them a whole fleet of ships and a ready-made business.

But the discovery and utilization of ship-operating executives is only part of the problem. The steamship and foreign trade organizations must be expanded, and above all things their foreign establishments must be set up and put into good working order with as little delay as possible. The Shipping Board itself, which is the greatest ship-operating concern in the world, felt the need for trained men, both at home and abroad, very keenly. With the idea of training a large number of such men as rapidly as possible, Mr. John H. Rosseter, Director of Operations, undertook to revive the ancient institution of super-cargo. The super-cargo was to be the business man of the Shipping Board vessels. He took charge of the manifests, bills of lading, and other papers, and looked after the cargo. He also posted himself thoroughly on trade and transportation conditions at each port his vessel visited, and he was required to make extensive reports to the Division of Operations on every matter of interest that came under his notice.

It was not intended that the super-cargo should exercise any authority or interfere in the operation of the vessel. In this respect he was rather an aid to the master of the ship than otherwise, because he relieved the master of a great deal of annoying work that does not properly belong to the navigation of the vessel. The primary purpose of placing such men aboard our ships was to train the men themselves in the finest school on earth for the manifold duties we would need them to perform in the American merchant marine as it expanded from a mere nucleus to a world-embracing commercial institution.

Take, for instance, the case of the super-cargo sent out on board the first Shipping Board vessel that made an East India cruise. She was a 7,500-dead-weight ton cargo vessel, and she made an ideal trading voyage. Instead of simply taking 7,000 tons of cargo out and bringing back a like amount, or returning in ballast, this vessel discharged her outward cargo at Manila, and replaced it with cargo for Singapore. At Singapore she reloaded for Calcutta, and at Calcutta she picked up a cargo for Colombo. From Colombo she carried goods to Singapore; thence to Siam and Manila. When she returned to the United States, she had lifted cargos aggregating 27,000 tons. The young man who had attended to that business had acquired in a few weeks an amount and variety of information not to be had in any other manner in any length of time.

Not only were these young men learning — they were rendering service. In many instances, despite their inexperience, the super-cargos went ashore in foreign ports and found return cargos when the Division of Operations had expected the vessel would be obliged to return in ballast. Also, it is a fact that, by the time we had been sending out super-cargos for two or three months, their reports began furnishing operating information of great value, not only in planning the routes of steamers already in service, but also in assigning new vessels to operating managers and trade routes. In other words, we found the super-cargo as valuable to us in our unestablished state as the old steamship companies used to find him valuable in the days before their foreign connections were so highly developed as they are to-day, and before the ocean cables covered the world so thoroughly as they cover it to-day. And, at the same time, a large number of young men of the finest type, some two hundred at a time, were being trained to fill positions necessary to the operation of government-owned ships, and later to the privately owned and operated American merchant marine.

At the same time, the training of young men who wish to enter the steamship business and the field of foreign trade is proceeding in the schools and colleges of our country on an ever-increasing scale. The School of Foreign Service, established at Georgetown University, Washington, with an initial endowment made by James A. Farrell, president of the United States Steel Corporation, has already launched a provisional half-year course. The curriculum contemplates courses in economics, political science, international and commercial law, shipping, and the French, Spanish, Portuguese, Japanese, and Russian languages. In New York City the foreign trade schools of Columbia University, New York University, the College of the City of New York, and Notre Dame University of South Bend, Ind., all are well attended, and since the cessation of hostilities have been obliged to increase the size of their quarters. The same experience is reported by the State universities and other institutions having commercial courses.

This matter of training and exporting men to look after the foreign end of our foreign trade is one that should receive the careful attention of every American citizen who has the interests of American commerce at heart. Instead of sending their sons to crowded American cities to drone away their lives in stuffy offices of big corporations, where fewer and fewer opportunities are open to them as the years pass by, American fathers should encourage their sons to strike out in new fields where individuality will have full play. The chances the future holds for the lad who is ambitious to go to Timbuctoo when he leaves school generally are much better than those in store for the lad whose ambition is to go to New York, for instance. Great Britain, the eading commercial nation on earth, has planted nine nd one half billion dollars[1] and several million British ubjects in foreign countries to carry on and develop ritish foreign commerce. Germany began to export ermans thirty years before German trade grew to anyhing approaching the proportions it had attained when he World War began.

An idea of the qualifications the Germans required of the employees who assisted in the management of their foreign agencies may be had from the following statement, taken from a letter received at one of the offices of our Bureau of Foreign and Domestic Commerce:

Born in 1880 in Chile, I graduated in England in 1897. The same year I took employment with a large London house. In 1898 I went to France, and in 1899 to Hamburg. In 1900 I went to the west coast of South America as the commercial scout for a Hamburg manufacturers' agent. In 1901 I took charge of the European agencies in my father's office in Santiago de Chile.

The years I spent in Europe I served as an apprentice, learning foreign banking, marking, packing, invoicing, and shipping of goods to the South American markets. In my father's office my duties were:

To keep in touch with buyers and watch their financial status.

Keep track of any new lines of goods imported from competitive sources.

Collect samples and labels of new competitive goods, and report on size of packages, duties, selling price, and if possible original cost price; also on colors and advertising matter. [In Latin America trade color is an important matter.]

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[1] In 1914 British overseas investments totaled $18,075,441,423, of which $8,662,345,667 was invested in India and the colonies and $9,413,095,756 in foreign countries.

Report on any changes in customs tariff, packing methods, marking and shipping instructions.

Adjust all claims which might arise between shipper and consignee; consignee and bank holding draft for collection; or between consignee and insurance company through loss, theft, or damage.

Attend to traveling representatives; help them with buyers, and visé all orders taken by them.

Handle all correspondence.

The problem of finding American citizens to command and man American ships is working itself out in a more satisfactory way than the other phases of the personnel problem. A large percentage of the young men who entered the merchant marine during the war seem to have experienced a reawakening of the adventurous spirit of their sea-going and pioneer American forefathers. Likewise, the American-born children of foreign-born parents have needed only the taste of adventure to reproduce the spirit that brought their forebears across the ocean. The Sea Service Bureau of the Shipping Board has trained and placed on board American ships 9,523 seamen, 9,053 firemen, and 5,333 employees of the steward's department, for service at sea. While these 23,000-odd young men were being fitted to perform duties before the mast, the Shipping Board navigation and engineering schools, situated in all important seaports, trained and graduated 4,591 deck officers and 5,171 engineer officers.

The effect of these intensive war measures, and the return of some former American seafaring men to their former calling, shows clearly in the personnel figures of the United States Commissioner of Navigation, whose branch organizations supervise the hiring and discharge of all men employed on board vessels engaged in the foreign trade. In 1914 the number of men serving in vessels under the American flag was 199,584. Of these men, 63,247 were native American citizens, and 31,417 were naturalized. In 1919 the total personnel had grown to 255,922, of whom 97,160 were native American citizens and 24,676 naturalized. Thus, while the total percentage of American citizens of both classes did not change materially, the native-born element among our citizen sailors increased from 33 to 80 per cent.[1]

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[1] These figures do not represent the total number of men in the American merchant marine, as they were compiled during the war period when a large part of our fleet was operated by the Navy with crews made up of the Naval Reserve and the Naval Militia. The figures are given merely to show the percentage of increase in the number of native born sailors who have "signed on" before a United States Shipping Commissioner.

CHAPTER XX

AMERICANIZATION AND RE-ORIENTATION

IN undertaking to finance, protect, and carry a fair share of their country's overseas commerce, American business men find themselves launched in several activities that are new to them. The interpretative study of world markets; the handling of foreign bills of exchange; arbitrage transactions; the adjustment of averages, and the intricacies of steamship operation in all parts of the world, are subjects about which most of us have much to learn. On the other hand, the American temperament and the American way of doing things are as new to these lines of business as the lines of business are new to us. There should be some compensating encouragement in this; for it is well known that by doing things their own way our business men have made a success of every enterprise they ever have undertaken to adopt. Usually they have effected improvements.

It is still fresh in the memory of many American business men that our people had not been in the steel industry in earnest more than a decade when they brought out processes that cut prices almost in half and made possible the substitution of steel for iron in structural work. Everyone knows how the American machine-tool industry and American large-scale production have revolutionized manufacturing everywhere. Even to-day, when the last word in such matters seems surely to have been said, milling industries all over the world, from the rollers of steel to the weavers of textiles, send representatives to the United States each year to comb the American industries for improved processes. Usually these representatives do not return to their own countries empty-handed.

The new spheres of activity into which our direct participation in world trade is introducing us are among the few to which American organization and administration methods have never been applied. In all of them the influence of tradition is strong. In some of them conservatism borders upon retrogression. For more than a generation the business of operating ships has been out of touch and sympathetic coöperation with commerce in the degree to which we hope to see it restored, and for almost the same length of time the marine insurance business has been out of coöperative touch with both. All three have been going their own ways, not always on better than speaking terms with one another. International banking has tried to follow their varied paths, but it has not always been successful in doing so. Consequently, it too has developed its own ideas and traditions. Can we Americanize these industries after we adopt them, as we have Americanized other adopted industries? And, after we have Americanized them, can we set them working in unison in the interest of American commerce as a whole? The answer to these questions will be very important to us.

One of the most difficult tasks in which I ever have participated was the effort to convince American steamship men that it is possible to operate ships under the American flag in competition with ships operated under the flags of other nations. This was not because the average steamship man is dense, for as a rule he is exceptionally well informed. However, his industry has always been fast in the iron grasp of tradition. Things are so, not because they have recently been inquired into and found to be so, but because for many years they have been accepted as so. In the face of this universal acceptance, few would ever think of inquiring into anything independently.

Thus for fifty-odd years it has been accepted as a fact that one of the chief reasons why the American flag has not returned to the ocean is the higher rate of wages paid to American seamen. When the Shipping Board pointed out that the wage and subsistence items combined never constitute more than 12 per cent. of the operating costs of a steamer, the attitude of the steamship men did not change in the least. Even after the events of the World War permanently raised the wages of European seamen approximately to the American level, there was still an argument over the wages paid the three or four extra hands called for by the American crew requirements. To-day nothing more is being said about these wage differences. The facts are as plain as it is possible for them to be, and the steamship men have accepted them silently. Nevertheless, down in the bottom of their hearts I do not believe some of the old-timers are yet convinced.

We have had the same experience in dealing with the blanket complaints against the navigation laws of the United States. Until the middle of 1919 the tonnage measurement rules, the provisions for seamen's quarters, the provisions for life-boat equipment, and the regulations of the Steamboat Inspection Service were all alleged to impose obligations that rendered the profitable operation of American-flag ships impossible. I do not undertake to say that our navigation laws cannot be improved upon; but I do feel sure that the sweeping charges that have been made against them, but never substantiated, have derived most of their momentum from tradition. I have heard State factory laws complained about in just the same way, and I have known of cases in which some prominent manufacturer's opinion of a new State law has been passed throughout the industry. But in the manufacturing industries I have never known these ideas to be clung to with such tenacity as in the steamship business, and I believe the phenomenon is a natural by-product of the industry's peculiar isolation.

It may be that this explanation also accounts for the persistence with which American steamship men still adhere to their demands for a government subsidy, in one form or another. Despite the many concrete facts that Shipping Board experience has developed to prove that American ships can compete on favorable terms with the ships of other nations, the annual review numbers of the metropolitan newspapers for 1919 contain several articles bearing authoritative names and telling the American people that, unless the United States government sells its ships for $100 a dead-weight ton, the American merchant marine will be hopelessly outclassed in competition with the ships of other nations. It is a fact that the British government sold some of its war-built standard ships for approximately this figure; but concerning these vessels "Fairplay," the British shipping magazine, had this to say under date of January 2, 1919: "An 8,130-ton, single-deck standard steamer has been sold by the government for £21 a dead-weight ton, and it is computed by some experts that about £10,000 would have to be spent upon this vessel to make her the equivalent of a boat built by an ordinary tramp owner." As far as the Shipping Board's London office has been able to find out, this is the only justification for the statement that British shipowners can obtain new ships for $100 a dead-weight ton. In the latter part of 1918 Lloyds reported that the British government had sold a 10,800-ton war-built cargo steamer to a private owner for $195 a dead-weight ton. In February, 1920, Norwegian shipowners were buying small coal-burning vessels from the Shipping Board at $200 a dead-weight ton without apparent doubt of their ability to compete.

This insistence upon a government subsidy is one of the characteristics that the modernization of the steamship business along American lines, and the infusion of new blood, not infected by the traditions of other days, must change. The American merchant marine must develop along constructive lines, with eyes turned forward instead of backward. No progress ever can be made by persons who continually wail that they cannot compete. We must look for our success in world trade to the establishment of regular freight service conducted by cargo steamers and combination cargo-and-passenger liners in our natural trade routes. The fast passenger service that our commerce may need will then develop of its own accord where it is needed, and any excess cost will be borne by the revenue from the freight business that calls it forth, and which it serves and stimulates, exactly as similar fast passenger service has developed in the railroad business on shore.

Then our entire steamship business will be self-sustained, and our fast liner service will be running where t is serving trade, instead of being confined to a few selected routes maintained, not for commercial purposes, but "as matters of national policy"— and at the public expense. The spectacle of three, and sometimes four, heavily subsidized liners sailing in the same route on the same day, each with half-filled passenger lists, had grown so common before the war that the nations that grant large subsidies are now looking for a way out of their expensive bargains. The British Board of Trade has declared against subsidies; likewise the French Chamber of Deputies. Can anyone honestly believe the American Congress is going to adopt something that sixty years' experience elsewhere has proved unsound?

The American people can be relied upon to see that the traditions of the steamship business that they have adopted do not lead them into any such bargains. If the steamship business, which is well known to be a great source of profit to every other industry in the country, insists that it cannot make money enough to provide for its own existence, the American people are curious enough to want to know why. And it will take something stronger than steamship traditions to convince them.

In the chapter on marine insurance a great deal has been said about the traditions and customs of the past. The modernization of this industry by Americanization is perfectly feasible, and it is going to be one of the most interesting developments of the new commercial e apart from the tremendous influence that it is bound exert upon the commercial methods of the whole orld. The international character of marine insurance is even more striking than that of the steamship business, or even of international trade itself. It moves faster, and it is subject to wide deflections at no notice whatever. A New York merchant recently made some purchases in the United States for a business correspondent in Buenos Aires. The letter asking him to transact the business also requested that the consignment not be insured in New York, but that the facts of the shipment, the nature of the goods, the name of the vessel, etc., be cabled to the agent of a British marine insurance company in Geneva, Switzerland. Apparently, for good-will or for some other personal reason, this particular Argentine merchant wished to throw his insurance business to that agent in Switzerland, and it was perfectly feasible and proper for him to do so.

Usually, however, the premium rate decides who gets the insurance, just as the charter rate or the freight rate decides what vessel carries the cargo, and the selling price of the goods decides what merchant makes the sale. A merchant on the continent of Europe, who wishes to establish a "coal-pile" for trading purposes on the west coast of South America, may cover half the habitable globe with cable inquiries before deciding upon the details of the venture. He will ask Cardiff, Newcastle, Eng., Newcastle, N. S. W., or Norfolk for the prices of certain grades of steaming coal. Then he will ask New York, Christiania, Liverpool, Rotterdam, and Antwerp for charter rates in order to find out where he can hire a vessel cheapest. Finally he will ask London, Paris, New York, Sydney, and Hongkong for the insurance premium rate on coal carried in approved vessels between the points he has selected from the answers to his other cables. On this basis he will decide how the business shall be done.

In order to compete in this world-wide business, the one thing our American marine underwriters need most at present is the foreign establishment to get for them a large spread of risks. It would be contrary to the avowed object of America, in undertaking to conduct a fair share of her overseas commerce, if our underwriters were to plunge into the insurance markets of Europe and attempt to wrest away the business of their competitors. Besides, it would be suicidal. The logical way for them to develop their business along American lines would be to establish their branches in the markets where America buys her vast supplies of raw materials and is building reciprocal trade. They would have a legitimate claim upon this business, because American purchases in those markets are the property of American citizens, who should be most inclined to favor American marine insurance. Also, they would have a good claim on the exports of American goods to those markets, because the countries in question have no marine insurance business of their own to favor, and it seems reasonable other things being equal that they should favor the marine insurance of the country that is their good customer.

There should be little trouble about getting business in this way, and in the aggregate such business would be large, profitable, and very widely distributed. In developing business of this sort, foreign marine insurance companies have often begun by authorizing branch banks of their own nationality in distant parts of the world to act as their underwriting agents. It is astonishing how much insurance business such a bank can pick up in connection with its local banking activities, and our marine underwriters would do well to take advantage of such opportunities as rapidly as possible. When the progressive American marine underwriters who are willing to forget the traditions and statistics of bygone ages enter this broad field, supported by American merchants, American banks, and American ships, they should soon have something to show for their efforts in obtaining their fair share of the business.

In a quiet but very effective way, a number of American banks have been steadily establishing and building overseas organizations since early in 1914. The National City Bank of New York, for instance, has fifty foreign branches, thirty of which are in Latin America. Its overseas branches employ more persons at the time this is written than did the home office in 1914, and the total deposits of these branches exceed those of the New York Bank at the time the branches were established. This means centralized control by one American institution of more than a billion dollars instantly available in all parts of the world to assist American commerce. And the National City Bank is only one of many American banks now well intrenched in the foreign field.

In these overseas establishments of American banks, American manufacturers and merchants have direct connections with their foreign markets, which are second in extent only to branch establishments of their own. Such branches make it their business to correct the errors and abuses that used to seem inevitable under the old-time practice of dealing through resident foreign importing houses, which generally had conflicting interests to appease and to play against one another.

At home, too, the American banks doing commercial business abroad make themselves useful to American merchants and manufacturers. The National City Bank, for instance, maintains a system of supervision to safeguard the export trade upon which it is building its own foreign financial business. If an American manufacturer expresses interest in sales abroad, the bank sends its technical men to advise him. They investigate his product and his plant. Also they gage his ability to take care of the needs of the particular foreign customers he wishes to cultivate. If his product or his processes need adaptation to foreign requirements, he is told so. In some cases he is advised not to venture into foreign markets.

A particular and typical instance of the establishment of a foreign branch by an American commercial bank is the Buenos Aires branch of the First National Bank of Boston. The specific occasion for this bank to undertake doing business in Argentina is the fact that a large part of the wool and hides exported from that country is imported into Boston. In addition to financing this business, the bank makes a local specialty of popular savings accounts, of which it has built up in two years a total of 15,000, aggregating some $3,000,000.

Our banking business, of course, did not need Americanization, and it is adapting itself to the requirements of American overseas business in a truly American manner, which argues well for what can be expected of the steamship business and the marine insurance business as soon as the American spirit can be thoroughly injected into them by the entry of a sufficiently large personnel of enterprising Americans.

But the Americanization of the newly adopted industries is only half the change that must take place. The other half is the re-orientation of the American people as a whole, so that they will understand the real nature of the new enterprises that are being undertaken. Everyone must be taught to realize that the nation is not embarking upon some new policy of internationalism, but that our people are simply beginning to take care of branches of their own trade that already exist, and that are inevitable, no matter what the national policy may be, because they are a part of our national life. As has been pointed out in the foreword of this book, all trade, no matter between whom, is part of the great process of recovering the riches of the world and redistributing them in accordance with the needs of civilized mankind. The international character of a particular part of a particular trade is simply an accident of geography.

Throughout the American nation one sees daily evidence of an increasing popular realization of this all-important fact — although it is not usually expressed so broadly or so concisely. On one page of a recent edition of a New York afternoon newspaper I noticed six different despatches from the agricultural regions of Kansas and the Dakotas expressing solicitude for the continued activity of the manufacturing industries of the East. They represented the farmers and their bankers as being fully alive to the necessity for keeping up the export trade of the manufacturers east of the Mississippi as a condition precedent to the prosperity of the agricultural population. It is significant, too, that during a farmers' conference in Washington in February, 1920, two distinct farmers' inquiries into foreign trade matters were initiated, and that neither of them bears directly upon the exportation of food-stuffs. When the American farmers undertake to study a subject *en masse,* they usually do not stop until they have exhausted it, and incidentally informed the rest of the population what it is all about.

One of the things they are finding out is that the advent of cheap wheat into Europe from South America and the Orient is not necessarily destined to stop the consumption of higher-priced American wheat in world markets. It seems that the high ocean freight and insurance on Australian and Indian wheat, plus milling losses, plus the cost of a second ocean haul, have given the matter a different aspect. At the close of 1919 the exportation of American flour had virtually ceased in anticipation of cheaper wheat from the Orient and South America. Now the world markets are discovering that American flour, made of higher-priced wheat, but subject to only one ocean haul, and paying freight on no milling wastage, is not such a bad buy, after all. Accordingly, the orders are coming in again. If any considerable part of the world will buy American flour, the American farmer cares nothing if two or three milling markets cease to buy his wheat. Incidentally, the American milling industry acquires new business.

A similar condition is found in the outlook for American cotton. Much gloomy talk has been indulged in about organized efforts to stimulate the production of cotton throughout the British Empire with the aid of an imperial subsidy. But what of it? Surely this is the British privilege. Moreover, it is an eminently wise thing for the British cotton-spinners to do. We must turn our eyes elsewhere. Out in the Orient lies China, with almost 400,000,000 persons whose need for cotton fabrics cannot be met with less than 5,000,000 spindles. There are only 1,500,000 spindles in the country. American mills should consume more American cotton and supply some of this Chinese deficiency, and the American cotton-growers should coöperate with them to that end. There are more ways than one for achieving the same result, and our people will find out that the more they study world markets and world conditions, more and more opportunities will open out before them.

And then, there is another thing to consider. One of the most acute provocations of discontent among the masses of unskilled and partly skilled labor is the uncertainty of continuous employment; and intermittent plant activity is equally a source of worry to the employer. The employer desires stabilized conditions as earnestly as the employee desires a steady job. With fifty foreign markets instead of only one domestic market in which to sell, stabilized conditions are possible in any industry, sales being the variant instead of production. Under these conditions, even seasonal industries can maintain constant output. They have merely to shift shipments from one hemisphere to the other as the sun crosses the equator. All that is necessary is to know the markets, and to have the ships to reach them.

Thus, world trade offers to help solve many problems, and as our re-orientation progresses and our steamship organization expands, we shall learn more and more of its possibilities.

CHAPTER XXI

CONCLUSION

IN the foregoing pages I have endeavored to present a picture of the brilliant future that the events of the last few years have made possible of attainment. However, we are not going to achieve the prosperity that should be ours by merely talking about it, or by cheering the prospective return of the American flag to the ocean at patriotic gatherings. We must take our patriotism home with us, and we must also take it to our business with us. The American flag is not going to return upon the seas in a way that will do America any tangible good until the American people become ship-minded and think of American business in terms of American ships. Then they must become direct shipowners and take part individually in the operation of the ships. American ship shares must become almost as common as Liberty Bonds in the strong-boxes of American families. This is not fantastic. Notwithstanding that American banks and American investors had little or no knowledge or experience with foreign investments, our people purchased direct some five billion dollars' worth of European war bonds during the first two and one half years of the Great War. Should they not now be both willing and able to purchase one half that amount of American ship shares, in quadruple that length of time, for the purpose of enabling themselves and their posterity to enjoy their rightful share in the profits of the world's development and commerce?

I have devoted this book to an exposition of the details of a modern American merchant marine operated as the instrument of American overseas commerce, assuming that such an organization is destined to become a reality. I cannot emphasize too strongly, however, that the American people must not only be back of this merchant marine, but that they must be with it and of it as well. During the summer of 1918 I encouraged American toy-makers to produce some playthings that would bring the American merchant marine to the attention of American citizens in early childhood. They brought out a self-propelled sheet-iron cargo vessel, and a game by playing which young Americans will learn the products and needs of the different nations and the rules and customs of ocean traffic. The need for such educational measures is a very real one, for the popular character of the merchant marine is its very life-blood in every maritime nation on earth.

In Norway the greater part of the people's savings is placed in miscellaneous ship investments. Almost every Norwegian lumberman, fisherman, shop-keeper, school-teacher, and professional man has his assortment of shares in individual ships, a large number of which are also partly owned by the officers who operate them. The popular ownership of the Norwegian merchant marine is so widespread that a delay which postponed payment for the Norwegian vessels commandeered while building in American shipyards during the late war caused the flare-up of a violent anti-American feeling in Norway, which the Germans capitalized heavily, and which was very difficult to appease.

In England, too, the sea life of the nation is in evidence everywhere on shore. Some observations on the population of the Tyne cities are recorded by William McFee in "Aliens" as follows:

> At the top was the great shipowning peer, the colossus of that part of the country, an omnipotent figure. Below him were the other shipowners, smaller fry, living in fine houses where they had made their money. They were connected by marriage with the next strata below: still smaller shipowners, and the men who had built up successful repair-shops and ship-chandlery stores. Next came the retired shipmasters, living in villas named after their last commands. In semi-detached brick houses up side streets behind all these you would find the homes of the mates and engineers.

Thus the whole of the British Isles is permeated with the ramifications of the British maritime establishment. In the year 1919 there were twenty-two shipowners in the British Parliament. Truly a merchant marine is a national institution.

According to an estimate given a committee of Congress by prominent steamship men in the autumn of 1919, the American steamship companies existing at that time could not expect to absorb more than 300 additional ships and handle them efficiently. The fleet owned by the government then numbered about 2,100 ships. From this it is easy to see that a great number of new operating companies must be formed before the American merchant marine can be placed on a permanent basis, ready for balance and development. The exceptional trade opportunities now existing in all parts of the world seem to point toward companies already engaged in and familiar with export and import trade as logical operators of ships. Also, an appreciation of the trade control made possible by the ownership of the vessels engaged in it seems to point to some degree of participation in the steamship business by merchants and manufacturers. What these opportunities and indications will develop into remains to be seen, but it is clear that in all the organization work that must be done the initiative, enterprise, and ingenuity of the American people must be drawn upon heavily. And it is equally clear that, if undertaken with genuine American understanding and enthusiasm, the work will yield rewards, both national and personal, that will be worthy of every economy and effort it may call forth.

The transfer of the American fleet from government to private ownership is now awaiting the initiative of the people themselves. Everywhere there are groups of men anxious to sell surplus products in the markets of the world. Day by day their ranks are swelling as the purchases of Europe fall off. For the same reason, these ranks will continue to swell. On the other hand, there are many groups of men who would like to start the formation of steamship companies. They can visualize the brilliancy of the future that logically should lie ahead of an American merchant marine. But before they go in for several million dollars of commitments, they must know something more definite about the trade they can rely upon carrying than the mere circumstance that a record of it is shuffled up somewhere in the statistics of the Department of Commerce. These two groups of men need to be brought together, and their interests and their resources need to be set working in tandem for the common good. In a country as large as the United States the bringing together of such interests on a comprehensive scale is not an easy matter.

Foreseeing this state of affairs, and realizing that it would have to work itself out more or less deliberately as a national development, the Shipping Board has attempted to stimulate the formation of new steamship companies by assigning as many of the government's vessels as possible to private operators. It was our hope that American citizens buying materials abroad, and American citizens selling their products abroad, would coöperate with us to the extent of insisting that their agents send their purchases and sales overseas in American ships whenever possible. If they had done so, even to half the extent we hoped, I feel sure we would have had several American steamship companies in operation to-day for every one we actually have. But they have not done so.

The Shipping Board is faithfully operating whole fleets of vessels in forty-one definite ocean trade routes on definite schedule, and through its private operators and managers it is supplying tonnage for new business and tramp voyages whenever a reasonably full cargo is offered. Nevertheless, up to the early part of 1920, when this is written, American ships frequently sailed abroad half loaded, and almost invariably returned empty, while foreign vessels plying the same routes always sailed from American ports with full cargos, and usually had something in their holds on the inbound voyage. If our exporters and importers are going to permit their agents to continue giving preference to foreign vessels in their own country's direct trade, we can never expect to develop a merchant marine of our own. Even the United States Treasury would soon go into bankruptcy trying to operate ships without cargos. On the other hand, if American citizens will go just a little out of their way to patronize American ships, we shall have a flourishing American merchant marine on the seas in a very short time. This is the crux of the problem to-day.

No doubt this unhappy condition is but an incident to the sudden entry of the United States into the steamship business before American business men had realized that the change would impose responsibilities upon them as well as bring them benefits. Nevertheless, it is a very serious matter; and it serves to emphasize the importance of popular education in the matter of ships, and of the popular participation in the ownership of the American merchant marine, upon which I have dwelt at some length throughout this book. If there is one thing upon which the future prosperity of the American people depends more than anything else, it is the speed with which the American business men can be educated to understand the true meaning and function of American ships.

We have come to a point in our history where our national consciousness is being awakened to an appreciation of our real position as a nation among nations — of our own dependence for many of the necessities of modern life upon other nations, and of the dependence of other nations upon us. At the same time, we find ourselves face to face with the necessity for disposing in other markets of the products of the tremendous industrial plant that we have expanded to meet the temporary war needs of Europe. The world's shelves are bare, its larders empty. On four continents besides Europe the products of our industries are in urgent demand. In many parts of the world our assistance in materials, machinery, and engineering skill is wanted to undertake and push forward the intensive development of new countries.

There is no question of competition with Europe. The job is too big for Europe. If undertaken all at once, it would prove too big for Europe and us combined. We should not regard the present impatience of all nations to engage in world trade as the precursor of an economic war. It is really the culmination of a period in which all nations have been becoming educated concerning the products of other nations. The needs of all nations being approximately the same, irrespective of their products, all are naturally anxious to exchange.

There is business enough for all; but the world is short of ships, and without ships no nation can get any share of it. We have our own logical markets to develop: those in which we buy the most. If we take our ships and cultivate those markets first, we shall soon find ourselves in all the markets of the world, attending to our own legitimate business and interfering with the business of no one. Trade, like nations, develops. Our nation has developed far ahead of its trade because it has always left its trade in foreign hands. With its trade in its own hands, carried in its own ships, America can soon achieve a position of importance, usefulness, and prosperity that will astound us all.

Always, however, we must preserve our sense of proportion. We must avoid undertaking too much as carefully as we must avoid relapsing into our former condition of doing too little. Our objective, and of course we must have a definite objective, should be to carry one half our overseas commerce in our own bottoms, leaving the other half to be carried by foreign ships. In this both our own ships and the ships of the nations that trade with us will be assured of return cargoes. Such reciprocity is universally practiced. Without it nations could not live in commercial peace. Even England whose vessels formerly carried 24 per cent of the international trade of nations, outside the British Empire, carried at the same time only 52 per cent. of her own trade. But the British Merchant Marine is an international common carrier, in addition to being the instrument of British overseas trade. Such a position in world commerce can be attained only after years of experience and cautious growth. Moreover it presupposes the possession of a fleet which is absolutely and ideally balanced to serve the myriad demands of such a varied trade as it would have to serve. The American objective for the present should be to operate in its own trade routes a fleet sufficiently large to carry one half the tonnage of those trades. The capacity of such a fleet has been estimated as between nine and ten million dead-weight tons. Up to that point we shall be simply performing our national duty to our overseas commerce. Should our shipowners then aspire also to enter into the trade of other nations, we, like the leading maritime nations of Europe, shall begin to become common carriers in world trade and we shall accordingly become their competitor. This however, is a question which can be answered only by the future.

APPENDIX A

TONNAGE EXPLAINED

THERE are five kinds of tonnage in use in the shipping business. They are dead-weight tonnage, cargo tonnage, gross, net, and displacement tonnages.

1. Dead-weight Tonnage expresses the maximum number of tons of 2,240 pounds of cargo, stores, fresh water, and bunker fuel that a vessel will carry at her deepest load draft. Dead-weight tonnage is used interchangeably with dead-weight carrying capacity. A vessel's capacity for weight cargo is less than its total dead-weight tonnage by the amount of stores, fresh water and fuel needed for a given voyage.

2. Cargo Tonnage is either " weight " or " measurement." The weight ton in the United States and in British countries is the English long or gross ton of 2,240 pounds. In France and other countries having the metric system, a weight ton is 2,204.6 pounds. A " measurement " ton is usually 40 cubic feet, but in some instances a larger number of cubic feet is taken for a ton. Most ocean package freight is taken at weight or measurement (W-M), ship's option.

3. Gross Register Tonnage applies to vessels, not cargo. It is determined by dividing by 100 the contents, in cubic feet, of the vessel's closed-in spaces. A register ton is 100 cubic feet. The register of a vessel states both gross and net tonnage.

4. Net Register Tonnage is obtained by deducting from the gross tonnage the cubic capacity of the crew's quarters, and spaces reserved for navigation, steering gear, anchor gear, propelling machinery, shafts and tunnels. The variations in the allowances made for these spaces account for the dif-

ferences in the net register tonnage of a vessel as measured under the British and American rules and the Suez and Panama Canal rules. Under the latter the net register tonnage of a vessel is generally higher, owing to the restrictions imposed upon machinery spaces.

5. Displacement of a vessel is the weight, in tons of 2,240 pounds, of the vessel and its contents. Displacement " light " is the weight of the vessel without stores, bunker fuel, or cargo. Displacement " loaded " is the weight of the vessel plus cargo, fuel, and stores.

For a modern freight steamer the following relative tonnage figures would ordinarily be correct approximately:

Net tonnage	5,250
Gross tonnage	6,850
Dead-weight carrying capacity	10,000
Displacement loaded, about	13,350

A vessel's register tonnage, whether gross or net, is virtually the same under the American rules as under the British rules.

Letter Sent to Members of the Senate Commerce Committee and all Members of the House Committee on Merchant Marine and Fisheries, July 31, 1919.

I feel I would be remiss if I failed to call to the attention of your committee the subject of an additional depreciation to be allowed on ships.

The history of ship values shows radical and sudden fluctuations. At the present moment, and probably in the immediate future, ships can earn a profit on the basis of the government cost. In view of past experience, however, the prospective purchaser of ships at government cost hesitates primarily because, under the presently allowed depreciation for taxation purposes, he cannot reconcile a present investment at government cost with a not distant competitive market value of ships.

The rate of depreciation now allowed has grown out of pre-war practice, and, in the opinion of prospective purchasers of ships, is very much less than should be allowed. These purchasers feel that at present cost the investment must be written down in the next three years to a value which will be comparable with the probable cost of ships delivered during the last three years. For instance, a ship sold to-day at $210 a dead-weight ton should stand on the purchaser's books at the end of three years at not more than $127.50 a dead-weight ton, which, considering its age, would place it on competitive parity with a new ship coming out at $150 a dead-weight ton. All present indications point toward such a value. In fact, contracts can now be made for delayed deliveries at approximately this price for the same type of ship that to-day represents a government cost of $210 a dead-weight ton.

It is rather difficult to establish just how much greater depreciation should be allowed. I submit for your consideration a suggestion of a special annual depreciation of 10 per cent. for a period of three years, over the normal 5 per cent. Such special depreciation, carrying a tax exemption for three years, might well be allowed on condition that at the expiration of the three years, or prior thereto, the fund thus created is applied to the construction of a new ship in an American shipyard. It might well be provided, moreover, that this fund should be set aside as a special depreciation fund, and deposited in a bank as such. If, at the expiration of the three-year period, the purchaser has not applied such untaxed special depreciation fund to the construction of a ship in an American shipyard, either as a whole or part owner, he should, of course, be required to pay to the government the full tax which he would have been called upon to pay had this special depreciation not been alowed. It is possible that it might be wise to continue the special depreciation allowance beyond the three-year period; but, in that event, it might also be wise to have it less than 10 per cent. for the additional years.

There is no difference of opinion as to the desirability of building up the American merchant marine, and also encouraging constructon of ships in American shipyards. I feel very strongly that this suggestion of a non-taxable depreciation allowance on ships purchased from the government is fair to both the purchaser and the government. It would help the government to dispose of its ships at a fair value, say approximately at cost; would put the purchaser of a government ship in a position where he would feel reasonably sure that such investment would not be excessively great when compared with ships constructed and delivered two or three years from this date; and at the same time, unless the money is applied to the construction of new ships, the government will not be the loser, as the purchaser is then compelled to pay to the government all taxes which would have been payable under normal practice, just as though the special depreciation fund had not been allowed. Such a program, it seems to me, would add a great incentive both to the construction of new ships and the participation of American shipping men in the development of the merchant marine.

Sincerely yours,
(Signed) E. N. HURLEY,
Chairman.

THE FOLLOWING LETTER WAS SENT TO THE HON. JAMES W. GOOD, CHAIRMAN OF THE HOUSE COMMITTEE ON APPROPRIATIONS, JUNE 4, 1919.

My dear Congressman:

In presenting to you the request of the United States Shipping Board for funds, I feel it my duty to give you an outline of our shipping problem as a whole. The interrelation of the shipbuilding and ship-operating industries is very close, and the unprecedented conditions which the war has imposed upon both of them cannot safely be adjusted to normal without carefully considered action by the government, at whose call they abandoned the normal limitations of commercial organization and adjusted themselves to the abnormal conditions of war. Moreover, the importance of those two great industries to the prosperity of the American people is so great that the necessity for establishing them upon a healthy commercial basis is widely recognized as a prime matter of national policy.

During the nineteen months in which our country was actively engaged in the war, the United States Shipping Board Emergency Fleet Corporation expanded the ship-building capacity of the United States from an unimportant position among the world's producers of ocean-going tonnage to first place. At the same time it has increased the overseas merchant fleet of the United States from a negligible quantity to second place. Our program has been molded, and its closing out has been planned, with the idea of leading the two industries by Congress consigned to our administration during the war up to the point at which they may strike out and develop on a commercial basis. The consummation of our efforts is dependent upon and now awaits the action of Congress in granting our request for funds, and in directing the manner in which we shall dispose of the government fleet.

Congress has authorized $3,671,000,000 and appropriated $2,625,451,000. We shall need all the money which has been appropriated, and in addition we shall require $673,368,301. However, the sum of these two amounts ($3,298,819,301) is $372,180,699 less than the amount Congress already has authorized us to spend.

The shipbuilding program has been greatly reduced since the signing of the armistice. We have suspended or canceled contracts for

754 ships, aggregating 3,797,825 dead-weight tons, which would have cost $797,564,276 to complete. The cost of canceling these contracts will be about $202,853,456, and the saving effected by cancelations will approximate $594,710,820.

The following is an account of our financial operations to date:

Actual expenditures and net commitments for shipyard construction, housing, transportation, etc., amount to $270,482,975, and it is estimated that the salvage will be $81,272,700. This means that we shall have to charge off from our shipyard, housing, and transportation investment $189,210,275, which is 5.6 per cent. of the total amount Congress has appropriated and is requested to appropriate.

On March 31 we had spent in the administration of the home office, the field establishment, and the district offices $24,173,000. By July 1 this item will reach $29,500,000. It will require an additional sum of $15,500,000 to complete the program. This means a total administration outlay of $45,000,000, or 1.37 per cent. of the total amount Congress has appropriated and is requested to appropriate.

The three net expenditures described in the last four paragraphs total $437,063,731. The subtraction of this amount from $3,298,819,301, the total appropriations made and requested, leaves $2,861,755,570 to be accounted for in ships. For this sum we have built and expect to build 2,434 vessels, aggregating 13,885,106 dead-weight tons. On its face, this ratio of tonnage to monetary outlay would indicate a cost of $206 a dead-weight ton. However, the actual cost of the ships to the government is considerably less than this amount, for the following reason:

Some ship-builders have paid into the United States Treasury income and excess profit taxes aggregating $40 a dead-weight ton on the vessels they have constructed. Others have paid the equivalent of $30 a ton. It is estimated that at least $25 a dead-weight ton has been returned to the Treasury in this manner by all ship-builders. This $25 does not include any taxes paid by the hundreds of subcontractors who manufactured the steel, the boilers, the machinery, and the many other things which go into the ships; but, when multiplied by 13,885,106 dead-weight tons, it indicates a rebate of $347,127,650, which, when subtracted from $2,861,756,570, leaves $2,514,527,920, or $180 a dead-weight ton, as the actual cost to the government of the fleet which played an essential part in the winning of the war, and which is now a permanent commercial asset of the American people.

On yesterday we sold one of our 7,500-ton freighters to the National Shipping Corporation of New York for $210 a dead-weight ton, and we have received from the Skinner & Eddy Shipbuilding Corporation an offer to buy at present construction costs four 8,000-ton freighters which the Skinner & Eddy Corporation itself is building. To-day we sold one of our 5,075-ton freighters to the Omega Steamship Company of New York for $210 a dead-weight ton, and we have received from another firm an offer to buy four ships at the same price.

A recapitulation of the foregoing figures is appended for your convenient reference.

In giving you this picture of our finances, I have confined myself to facts and figures. I have made no mention of the unusual conditions under which our work was planned and carried out. However, it is interesting to note that the cost of our steel and machinery was three times its normal cost, and that the wages we paid to labor were based upon double the normal rate. Also it is interesting to consider, in connection with the foregoing figures, the fact that we expanded the ship-building industry tenfold in ten months, with high-priced materials and under the handicap of transportation delays which made the work very costly. In the prosecution of our work we have made many blunders, and finally, when we were compelled by the signing of the armistice suddenly to stop and reverse the ponderous machinery we had been driving at full speed, we found ourselves confronted with new problems, through the mazes of which we are happy to report that we now can see our way clearly.

Sincerely yours,

(Signed) E. N. Hurley,

Chairman.

Amount authorized by Congress.......		$3,671,000,000
Appropriated and will expend.........	$2,625,431,000	
Additional appropriation required.....	673,368,301	
Credit for administration: (1.37 per cent. of total amount appropriated and requested)		45,000,000
Credit for net cost of shipyard development, housing, and transportation (5.5 per cent. of total amount appropriated and requested)		189,210,275
Credit for canceling ship contracts.....		202,853,456
	$3,298,819,301	$437,063,731
	437,063,731	
Money spent and to be spent for construction of 13,885,106 dead-weight tons of ships	2,861,755,570	

Tax paid by ship-builders ($25 by 13,885,106 dead-weight tons)	347,127,650
Net cost of 13,885,106 dead-weight tons of ships	$2,514,627,920
Average net cost of ships per dead-weight ton	$180

APPENDIX B

I asked Mr. J. H. Rosseter, formerly both Vice-President and General Manager of the Pacific Mail Steamship Company, and Vice-President of William R. Grace and Company, to give me his view on the comparative cost of operating ships under the American flag and under other flags. Mr. Rosseter has had thirty years' experience in the operation of American vessels in competition with the Japanese, the Norwegian, the English and the Germans, and because of the authority which this experience gives him to speak on the subject, I would not consider this book complete unless it contained a verbatim copy of his answer. The letter follows:

E. N. H.

"Mr. E. N. Hurley,
Chairman U. S. Shipping Board,
Washington, D. C.

"*My dear Mr. Hurley:—*

"In compliance with your request, I am happy to send you a brief statement of my views on the question of successful operation of ships under the American flag in foreign trade.

"At the outset I wish to state with utmost emphasis and firm conviction, that there are no insuperable obstacles to our success in competition with other nations. Against this you hear men of experience in shipping assert with equal emphasis that our disabilities, particularly the higher cost of manning, are such as to place American ships at a hopeless disadvantage. Such adverse statements, given wide publicity, naturally confuse the public mind, causing a feeling of uncertainty and hesitation very prejudicial to our aspirations.

"As often happens in large questions, the controlling factors are overlooked or neglected. The amount of wages paid is to be properly measured by accomplishment. It is true we have a larger number of officers and men on a ship than required under foreign flags, and that we pay higher wages and provide better food, all of which costs more than our competitors are paying. That is not to be contradicted and for my part it is not to be changed, confidently expecting as my own experience has proven, that we get better and more efficient service from men who are well paid and well fed.

"We also suffer extra costs as a result of stupid and needless regulations in the form of tonnage measurements, etc., which should and undoubtedly will be corrected.

"Much emphasis has been laid on these items and too little attention given to the really important problems. Within our reach are advantages to be gained, far offsetting our disadvantages, and I firmly believe that American ingenuity when properly directed will triumph.

"As an example, consider the cost of water-borne commerce on the Great Lakes. There you find, under the spur of necessity and achievement, that American built and American manned ships are handling and carrying cargo at the lowest cost per ton known in world's commerce. It is but a step to the equal accomplishment in our ocean business, but we must approach the problem with confidence and determination.

"The prejudice of higher costs of manning, by which I mean larger crews at higher pay and extra cost of victualling, can be fairly stated as amounting to less than two per cent. of the total operating expense. This can be entirely offset, and more, by a reasonable increase in the speed of our ships and by improving loading and discharging equipment, thus reducing the time in port as well as on voyage.

"Again there is the problem of improving the method of propulsion by utilizing the great natural advantage we hold in our supply of oil fuel. As you know, even with the ordinary reciprocating type of engine we get one-third greater distance from a ton of oil than from a ton of coal, besides doing away with the so-called 'black squad,' which means a reduction of at least 6 men in the engine room. So great are the possibilities in the field of propulsion that I will not venture even a surmise as to what may be accomplished in that respect.

"Other questions which have a most important bearing on our maritime enterprises may be briefly mentioned:

"(a) Cost and type of construction, in which we should lead the world:

"(b) Utilization of natural highways and channels of trade, including co-ordination of railways and steamship lines:

"(c) Development of efficient maritime organizations abroad as well as at home. Without proper representation and facilities abroad we would be at a fatal disadvantage:

"(d) Assurance to shipowners and merchants of the lowest rates of marine insurance:

"(e) The most favorable facilities for foreign exchange and discounts:

"(f) Such conservation or legislation as may be necessary to assure a supply of oil fuel for our ships.

"These are the real problems we are facing, and confident of a successful solution I believe we will reach a high place in world's commerce.

"The prize is a great one. Aside from feelings of national pride and considerations of national security, our Merchant Marine will bring in increased revenue more than $5,000,000,000.00 a year to our national resources, which is a very moderate estimate, taking but small account of the great increase in trade.

"Yours very truly,
"(Signed) J. H. Rosseter."

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